ECONOMIC SURVEY OF EUROPE IN 1976

Part II

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in Eastern Europe and the Soviet Union

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ECONOMIC SURVEY OF EUROPE IN 1976

PART II

THE FIVE-YEAR PLANS FOR 1976–1980 IN EASTERN EUROPE AND THE SOVIET UNION

Prepared by the

SECRETARIAT OF THE
ECONOMIC COMMISSION FOR EUROPE
GENEVA

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EXPLANATORY NOTES

The following symbols have been used throughout this SURVEY:

.. = not available or not pertinent;

— = nil or negligible;

* = estimate by the secretariat of the Economic Commission for Europe.

| signifies a break in the comparability of a statistical series.

In referring to combinations of years, the use of an oblique stroke—e.g. 1974/75—signifies a twelve-month period (say from 1 July 1974 to 30 June 1975). The use of a hyphen—e.g. 1973-1975—normally signifies either an average of, or a total for, the full period of calendar years covered (including the end-years indicated).

Unless the contrary is stated, the standard unit of weight used throughout is the metric ton. The definition of "billion" used throughout is one thousand million. Minor discrepancies in totals and percentages are due to rounding.

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PART II

THE FIVE-YEAR PLANS FOR 1976–1980 IN EASTERN EUROPE AND THE SOVIET UNION

1. GENERAL DEVELOPMENTS

(i) Main features of development strategy

It has been generally recognized that the strategies of economic and social development on which the five-year plans are based are orientated to *long-term* problems, going beyond a time horizon of five years.[1] The elaboration of long-term programmes of global social and economic development for the period up to 1990 was in all countries organized simultaneously with the work on the five-year plans for 1976-1980. Certain special programmes of long-term development had been prepared previously, but this is the first time that they have been elaborated on such a scale within the global national framework. All the countries of the region have applied a similar methodological approach in this connexion, and the intention of establishing a close connexion between long-term perspectives and five-year plan objectives has been strongly stressed.

The long-term character of the strategic options incorporated into the five-year plans confirms, first of all, the importance of *social development* and, in particular, of programmes for increasing the material and cultural welfare of the population. This issue is not in itself new, but what is new is the methodology of treating social and economic development within one complex. (This approach was particularly emphasized in the German Democratic Republic.)

The strategic orientation to *balanced growth*, accepted in all the countries of the region, reflects long-term considerations of structural and regional development in investment programmes. Special attention has been devoted to the energy complex and to technology-promoting branches in all countries, and to agriculture and consumer-goods production in most of them. Structural problems within these complexes, and problems of integrating them into the national economy have dominated development policies. The selection of priority sectors and complexes was made with a view not to maximizing economic growth, but to optimizing social and economic growth by redressing structural imbalances. The new production structure has been designed to maintain economic expansion at a steady and high pace in the long run. This aspect of the plans was particularly stressed in Czechoslovakia, where it has been stated that the plan incorporates "considerable readjustments corresponding to long-term development trends".

It is obvious that past trends and developments provide a starting point and a basis for the programmes for future development. In that regard, the period preceding the elaboration of the 1976-1980 plans differs essentially from that which preceded the plans for 1971-1975. During the period 1971-1975 the east European countries and the Soviet Union had to face qualitatively new economic problems, which required modifications to, and adaptations of the objectives in the five-year plans for that period. In particular, *developments in the world economy* had some impact on the reformulation of long-term strategic options. From that point of view, only 1971 was a "quiet" year, with changes in strategy motivated largely by domestic developments, and limited to Poland and Romania. The first big economic crisis in the western world during the 1971-1975 period—the crisis in the international monetary system—left the national economies of eastern Europe and the Soviet Union almost unaffected, owing to specific institutional patterns of trade and payments with the countries outside the region. This has not been the case with subsequent developments —price increases and inflationary pressures, the energy crisis, and economic recession. All this influenced developments within national economies, and also the development of intra-regional economic relations.

By 1972, the *inflationary pressure* of increased prices of imported goods required policy measures designed to protect domestic price structures from adverse effects, and to maintain stability of producer and consumer prices. The incidence of price subsidies has increased each year since then. This has certainly affected domestic allocation of resources for final consumption, but price stability has been maintained in most countries. Where price increases have occurred, they have remained largely under control (the rates have not exceeded the targets provided for by the annual plans). The energy crisis contributed to an already tense situation in supplies and prices. A new methodology for setting foreign trade prices within the CMEA region was accordingly introduced in 1975, and this modified the terms of trade and the trade position of individual countries. New policy measures to neutralize or minimize the adverse effects of these changes on domestic trends and structures were introduced. As mentioned earlier, the stability of producer and, in particular, of consumer prices has been maintained, but work on the revision of wholesale prices for industrial and farm products has started in virtually all countries.

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[1] See, for instance, N. K. Baibakov, "Putting into operation the economic strategy of the Party", in *Izvestiya*, 31 December 1976.

The impact of the *energy crisis* had another aspect. From the start it was seen that the energy complex should be treated as a long-term structural problem. In fact, new long-term programmes were worked out before the end of the quinquennium under review, and the objectives of the 1971-1975 plans revised accordingly. As the bulk of energy supplies comes from the Soviet Union, programmes for joint undertakings in this field were worked out within the CMEA framework involving, in particular, joint investment in transmission lines and pipeline networks, and co-operation in the field of nuclear energy.

In addition to energy, the *raw materials* complex presented problems requiring revision of long-term development policy. Reliance on domestic resources and joint programmes within the CMEA area were signs of a new orientation in development strategy. The problem of *agriculture*, and in particular that of grains, although basically of domestic origin, had considerable external implications for most countries over the whole period. The poor harvest experienced in most countries in 1975 was a factor that contributed to increasing trade deficits. The solution of the food problem required not only a long-term approach, but also a higher ranking for agriculture in development priorities. The Soviet five-year plan for 1976-1980 fully confirms such a strategic choice.

Economic recession in the western world induced further modifications in the basic strategic orientations of the 1971-1975 plans. Asymmetrical trends in imports from and exports to western countries changed the trade position of all the countries of the region. Increasing trade deficits required the formulation of new trade strategies, and also modifications in national development programmes. Export-oriented branches and enterprises obtained the highest priority in the allocation of investment resources and factor inputs. The emphasis on export-orientation as a criterion in development programmes has never been more pronounced than in the new five-year plans.

The impact of these changes in the western economies on economic performance in eastern Europe and the Soviet Union demonstrates an increasing degree of dependence of particular countries and of the region as a whole on economic relations with the rest of the world. New policy measures have been basically of a protective character, aimed at the minimization of adverse effects on domestic economic developments. Prospects for future developments in western countries and their impact on east-west relations do not provide any guarantee that they will be favourable to the smooth implementation of programmes for economic development in particular countries. But economic relations with the western world are necessary conditions for national development and the new global development strategy, and a strategy for foreign trade and foreign economic relations cannot be formulated without taking into account the need for protective measures.

Most of the problems which require new and more efficient solutions from the point of view of economic and social development are of a long-term character. Some of them, such as energy supplies, raw materials, food, technology transfer, are of such immediate importance that they require a reformulation of strategic options. Others, such as balance-of-trade deficit, price discrepancies, international payments systems, although also related to current developments, require in some cases a time horizon exceeding five years.

The international aspect of development strategies in the new five-year plans has another component relating to the development of economic relations within the framework of the *CMEA*. The whole period between 1970 and 1975 was characterized by an intensification of foreign trade relations, co-operation in the field of technological development and scientific research, the development of specialization in some production sectors, and the further development of credit and financial arrangements. A *comprehensive programme for the further intensification and improvement of co-operation and the development of socialist economic integration*, adopted by the CMEA countries in August 1971, provided a basis for the intensification and expansion of co-operation in the economic, technical and scientific fields. The expansion of the activities of the International Bank for Economic Co-operation, and the setting up of the International Investment Bank in 1971, supplied a new framework for the financing of economic transactions and co-operation within the region. Joint investment projects and the recently (1976) approved development programmes for matters of common interest within the CMEA add another dimension to co-operation within the region.[2] There is no national five-year plan for 1976-1980 in which co-operation between the CMEA countries has not been taken into account in the formulation of long-term development objectives.

The impact of international developments has been much more decisive in the formulation of new strategies than in any previous period. Nevertheless, the role of *internal developments* remains dominant. The issue of *factor inputs* is certainly of the highest importance. There is no country in the region in which the problem of material inputs—raw materials, fuel and power and agricultural production—has not provided cause for particular concern. Domestic supplies have been insufficient in most countries of the region in the past, but this has not been linked with any particular economic difficulties. Recent developments on world markets have changed the situation fundamentally, and highlighted the increasingly strained situation in this field. Moreover, future prospects, in terms of quantities of available natural resources and the level of the technology applied in their exploitation, are not very promising without essential changes. Even in the Soviet Union, plans for the opening-up of Siberia's natural riches are linked with huge investment costs, and with the need for new technologies, some of which are still in the research stage.

The exploitation of Siberian resources presents two basic strategic choices, in terms of the solution of problems of delivery to consumption centres. Both of them require massive investments in infrastructure. The first option is based on maintaining the existing locational distribution of production and consumption centres, and implies large-scale investment in all forms of transport: railroads, pipelines, transmission lines. Improvements in the technological level of these forms of transport would be a necessary condition of making transport services economically efficient. The distances involved are so great that road transport is not a practicable alternative for the foreseeable future. The second option involves the building up of processing sectors in Siberia, close to the sites where resources are located, and the formation of so-called territorial-production complexes. Besides considerable investment spending on production capacities, large-scale resources must here be allocated to the building-up of the infrastructure needed for the formation of new industrial, as a rule urbanized, settlements in areas where, in most cases, unusually adverse climatic conditions make building and maintenance extremely expensive. In fact, both options have been incorporated into the Soviet development programme for 1976-1980, and this will affect the whole investment allocation pattern.

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[2] See O. Rybakov, "The long-term-goal-oriented programmes of the member countries of the CMEA", in *Planovoe Khozyiastvo*, No. 8, 1976.

Large-scale investment in Soviet agriculture is another element of long-term strategy which has contributed to the structural shifts in investment spending envisaged in the 1976-1980 Soviet plan. These shifts are certainly not likely to bring about an acceleration in the rate of global expansion. Increased concern in recent years with the protection and rational use of *land stock*, and in particular of arable land, is another component of the long-term strategy related to factor inputs. (See section on agriculture.) Finally, environmental considerations have taken an important place in long-term strategy. The amount of investment spending envisaged for this purpose by the plans is no longer a negligible quantity.

The situation on *labour markets* became increasingly strained in all countries during the period 1971-1975. The supply of labour resources has been declining. The rate of natural increase of the population has been falling, and the outflow of agricultural labour has decelerated in absolute terms. The participation rate of the female population of working age no longer differs markedly from that of the male population. The reemployment of retired people has been stimulated, but this can be only a limited source of additional labour. Possibilities of employing foreign labour remain extremely limited. It has been reported that labour shortages have been acute in many branches, most frequently in construction. Regional shortages have emerged even in countries where relatively abundant labour supplies exist at the global level. The more intensive use of production capacities, one of the policy objectives aimed at increasing the efficiency of utilization of fixed assets, can be achieved only to a very limited extent, since the expansion of shift work is constrained by the availability of labour. The policy of using labour more rationally, and giving the highest priority to labour productivity, are among the most significant strategic choices envisaged in all the plans. In the long term, pronatalist measures in population policy may improve labour supplies, but no improvement in trends can be expected before 1990 in most of the countries of the region, and even then on a rather modest scale.

A high degree of attention has been devoted to *technological advance*. Investment programmes have reflected this policy orientation, primarily through the high priority given to technology-promoting branches. A structural shift, even in quantitative terms, in favour of the engineering and chemicals industries seems to have been envisaged in the plans, going by the share which these two industrial branches are supposed to achieve by the end of the five-year period. On the other hand, many countries were elaborating programmes of modernization and reconstruction for entire industrial branches and some non-industrial activities (usually construction and transport) by the final years of the 1971-1975 period. Investment expenditures destined for reconstruction and modernization have been increasing, and will continue to increase their share of total investment.

The pattern of investment expenditures also reflects major strategic choices in *structural policies*. The policy of industrialization, based in its initial stage on an accelerated expansion of branches in heavy industry (group A, producer goods) has left many other sectors short of financial resources for proportionate development. The examples are well known. Agriculture, transport, services and some activities in the non-material sphere have lagged behind in most of the countries of the region. In some countries, construction has also been cited as a major bottleneck in the national production structure. The attention paid to agricultural development and consumer-goods industries since 1965, then, and the 1971-1975 emphasis on so-called consolidation policies aimed at redressing structural imbalances, have been among the new elements in the long-term global strategy. Long-term programmes for the development of food production, transport, energy and fuel, and housing were also prepared in the majority of countries during the period 1971-1975.

Structural policies have also been influenced by the development of co-operation within the CMEA region and, in the most recent period, by the unfavourable developments on western markets. New industries have been built, based on CMEA specialization programmes, and some of these have recorded particularly high rates of expansion. The degree of trade dependence has increased, and the share of goods produced on the basis of specialization programmes has shown an upward trend as a proportion of total trade. Export-promoting branches have been quoted for the first time in most of the five-year plans as activities of the highest priority within development programmes. All these new developments in structural policies imply changes in global development strategy. At the most general level they imply a policy of proportionate (balanced) growth.

The *regional* aspect of development became increasingly important during the period 1971-1975. Different types of regional development programmes were worked out in all countries. Some of them had as an objective the creation of new growth centres, as, for instance, in the case of the territorial-production complexes in the Soviet Union. In other cases, the underlying idea was related to the need for deconcentration of production capacities, through an acceleration in the growth of provincial centres (for instance, in Hungary). Equalization of levels of economic development was the leading principle in the preferential treatment accorded to Slovakia and some parts of the Czech lands within the Czechoslovak federation. The economically backward countries of Romania and districts of Bulgaria also obtained preferential treatment. Most of these programmes have been extensively incorporated into the five-year plans for 1976-1980. Their impact on the pattern of investment spending, on the allocation of material resources, and on the distribution of the labour force, has certainly contributed to the new form of global development strategy, and to changes in the ranking of development priorities.

The long-term strategy adopted has accelerated the process of *institutional change*. The formation of large-scale, specialized or vertically integrated, production complexes has been in progress in all the countries of the region. The principle of optimization of the organization of production units from the technical point of view has dominated the reorganization of enterprises in industry and socialist (state and collective) farms in agriculture. This is not a new process, but the developments in the 1971-1975 period witnessed an essential change in the extent and pace of the process. Even experiments which started on a very modest basis—after two to three years of trial—were generalized with such speed that they became dominant forms (for instance, large-scale enterprises in Poland and agro-industrial combines in Bulgaria).[3] The structure of enterprises and socialist farms by size and form of organization of production at the end of the 1971-1975 period had been completely transformed by comparison with the 1970 pattern. Institutional reorganization has also been carried on at the intermediate and national levels of the planning and management structure.

The formation of a new managerial structure has been accompanied by simultaneous changes in planning methodology, and also by the wider application of the *khozraschet* principle in non-industrial activities (construction, socialist farms for example). Reorganization of the middle and higher levels of management (ministries etc.) has aimed, among other things, at the introduction of *khozraschet* in their activities, which in fact implies their transformation from administrative into business organizations. A characteristic element of the new approach has been the role allotted to economic instruments, and particularly to prices. The introduction of new producer prices has been envisaged for the beginning of the new quinquennium in all the countries of the region.

The list of factors which have a direct or indirect impact on the choice of global strategies incorporated into the five-year plans is certainly much longer. But the above analysis shows the main features, and the major differences in relation to the strategic options incorporated into the 1971-1975 plans. Developments during the period 1971-1975 changed economic structures to such an extent that strategic choices for future development must have been worked out on a virtually new basis. Thus the statement that the 1976-1980 plans incorporate a policy orientation aiming at the continuation of past trends and developments can be accepted only on a very global and aggregate level. Social programmes and welfare policies, the maintenance of global and major sectoral growth rates, the redressing of structural imbalances, increasing efficiency in the use of factor inputs, internal and external stability, are all objectives which can be found in every national plan, or in any political statement referring to the problems of global economic development. At the same time the long-term strategic choices incorporated into the 1976-1980 plans are based on accelerated industrialization (in terms of higher rates of growth for industry than for the whole economy), based in turn on the highest priority for producer-goods industries (not only in terms of growth rates, but even more in terms of shares in investment spending).

For all that, changes in the character of industrialization within this general strategy have become more and more evident. Industrialization based on machine technology and large-scale specialized production units was restricted, in the initial stage, largely to industrial activities *stricto sensu*. To-day, the industrialization process has been extended to new activities, particularly to agriculture, construction and, more recently, to retail trade, which reflects the multi-dimensional, multi-sectoral character of industrialization at the contemporary stage. As is well known, changes have taken place in the factor input mix. A dominant role for labour inputs and of massive additions to fixed assets, against the background of a relatively slow advance in the level of technology, are not characteristics of the strategic choices adopted in the new five-year plans. Emphasis on technological innovation, and on labour-, material-, fuel-, and capital-saving technologies, and new forms of planning and management, indicate substantial shifts in global strategy. The term "continuity of long-term strategy" (rather than continuation of past trends) can be applied to the new five-year plans, but the above-mentioned qualifications should be kept in mind.

(ii) Over-all economic growth

The national plans for 1976-1980 envisage the maintenance of a high rate of over-all economic expansion in terms of NMP in the east European countries, and in terms of distributed NMP in the Soviet Union (table 1.1). The lowest average annual percentage rate of growth envisaged in eastern Europe is 4.9 per cent (Czechoslovakia), while the rate planned in the Soviet Union is 4.7 per cent. The inter-country profile by level of growth rate has not been changed in comparison to 1971-1975, as the text table below shows.

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[3] For more details on the reorganization of industrial enterprises, see *Economic Survey of Europe in 1973, 1974, 1975*, United Nations, New York, and on that of socialist sector farms the section on agriculture of this volume.

East European countries and the Soviet Union by the size of the rate of growth of NMP

Average annual percentage change	*1966-1970*	*Plan 1971-1975*	*1971-1975*	*Plan 1976-1980*
10.0 and over	–	Romania	Romania	Romania
8.5-10.0	Albania, Bulgaria	Albania	Poland	–
7.5-8.5	Romania, Soviet Union	Bulgaria	Bulgaria	Bulgaria
6.5-7.5	Czechoslovakia, Hungary	Poland, Soviet Union	Albania	Albania, Poland
5.5-6.5	Poland	Hungary	Czechoslovakia, Hungary, Soviet Union	Hungary
4.5-5.5	German Democratic Republic	Czechoslovakia, German Democratic Republic	German Democratic Republic	Czechoslovakia, German Democratic Republic, Soviet Union

Source: Table 1.1.

The planned targets for over-all expansion are in all countries lower than the average annual rates of growth of NMP in 1971-1975, but by no more than 1 percentage point (with the exception of Poland, where the drop is to be by more than 2 points). The planned deceleration of the pace of over-all expansion has brought planned targets in most countries closer to the respective *planned* targets stipulated by the 1971-1975 plans. The relative slowdown in over-all expansion will not reduce the absolute increase in the value of national income in any country.[4]

In considering levels of growth rates compared on an inter-country basis, a distinction between maximum, optimum and sub-optimum levels can perhaps be made. The growth rate of 10 to 11 per cent envisaged by the Romanian five-year plan for 1976-1980 must be close to the maximum level for that country. The switch from a 7 per cent rate (planned for 1966-1970) to one of 11 to 12 per cent (planned for 1971-1975) certainly occurred as a result of a new policy choice aimed at maximizing growth. The new plan aims to maintain virtually the same pace. The development programme envisaged for 1976-1980 is based on the highest accumulation rate in the region (33.5 per cent), which confirms an orientation towards the maximization of growth.

Some tendency to set the growth rate for over-all expansion above a rate which permits the minimization of internal imbalances and the maintenance of trade balance may have existed in the past in the cases of Bulgaria, and even more so in that of Poland. In Bulgaria, a policy of accelerating over-all growth was apparent in 1974 and 1975 (annual targets of 10 and 9 per cent respectively), while in the guidelines the five-year target was set at 8.2-8.7 per cent. Finally, in the Law on the 1976-1980 plan, a 7.7 per cent rate was adopted. For Poland, the target for 1976-1980 represents a considerable reduction in relation to the average annual 9.8 per cent rate of over-all growth recorded during the period 1971-1975. However, it seems that this planned rate cannot be considered as definite. The First Secretary of the PWAP pointed out in November 1975 that the five-year plan is "an open-ended plan, which makes possible future corrections justified by social and economic considerations". It will be recollected that such an upward revision of the plan target took place in Poland in 1971, successfully accelerating the pace of over-all expansion (chart 1.1).

The targets for Czechoslovakia and the German Democratic Republic (about 5 per cent) do not indicate any intention of accelerating growth by comparison with the 1971/75 average figure or, in the case of Czechoslovakia, by comparison with recent annual rates. These, then, would appear to be close to optimum rates for these two countries. The target rates for Hungary are at about 5.7 and 5.5 per cent respectively for the quinquennia 1971-1975 and 1976-1980, somewhat below the

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[4] The increase in the value of NMP in billions of n.c.u. can be calculated on the basis of NMP in 1975 at current prices (for the German Democratic Republic and Romania at constant prices) and the indices of growth of NMP over the respective five-year periods.

		Increase in NMP over five-year period (in billions of national currency units)	
	NMP 1975	*1971-1975*	*1976-1980*
Bulgaria	14.3	4.5	6.4
Czechoslovakia	409.9	103.5	106.6
German Democratic Republic	141.7	32.7	39.1
Hungary	402.0	105.8	120.6-128.6
Poland	1 357.0	508.9	546.2-572.7
Romania	361.9	150.3	220.8-247.9
Soviet Union	382.8	88.0	94.3

CHART 1.1

Changes in gross product, net material product and factors inputs

(*Indices, 1965 = 100*)

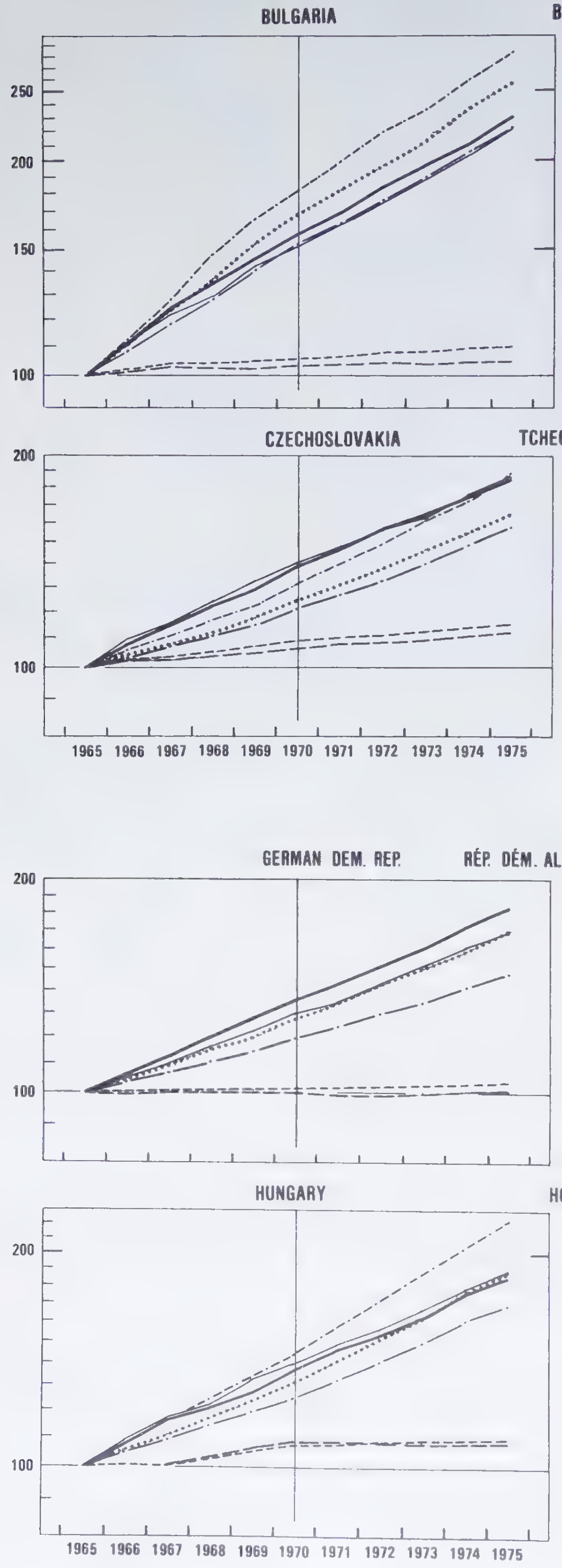
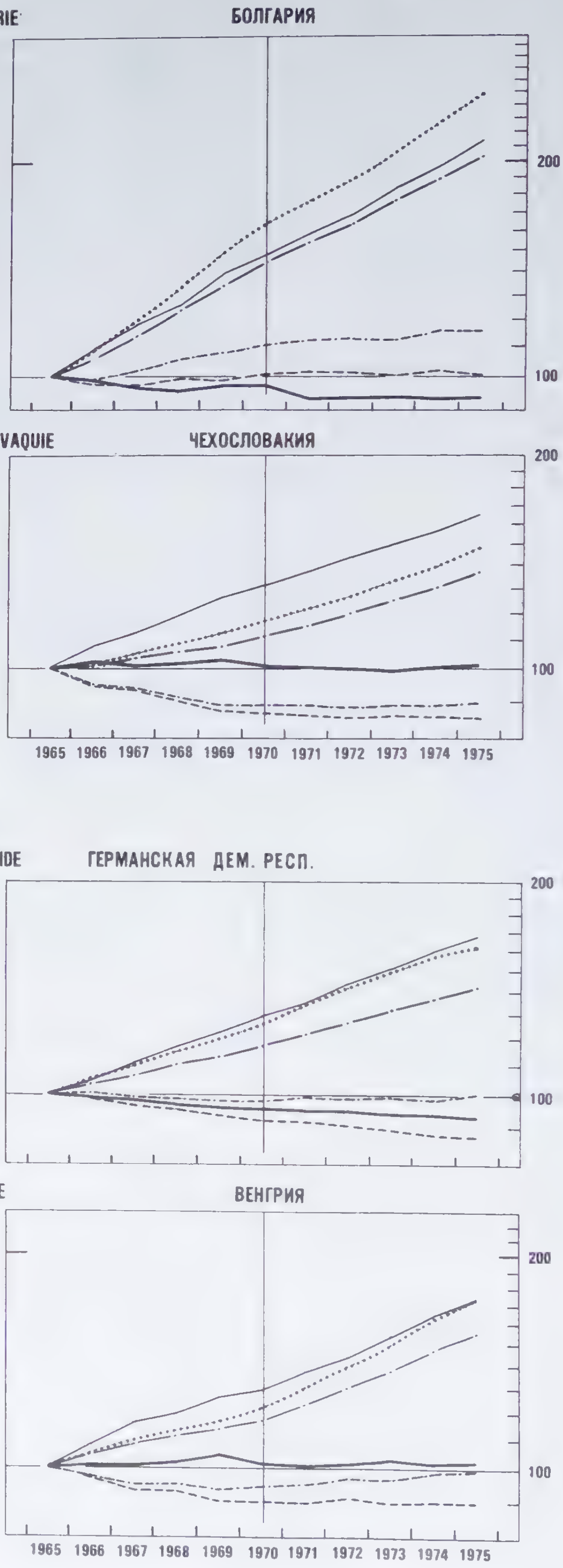
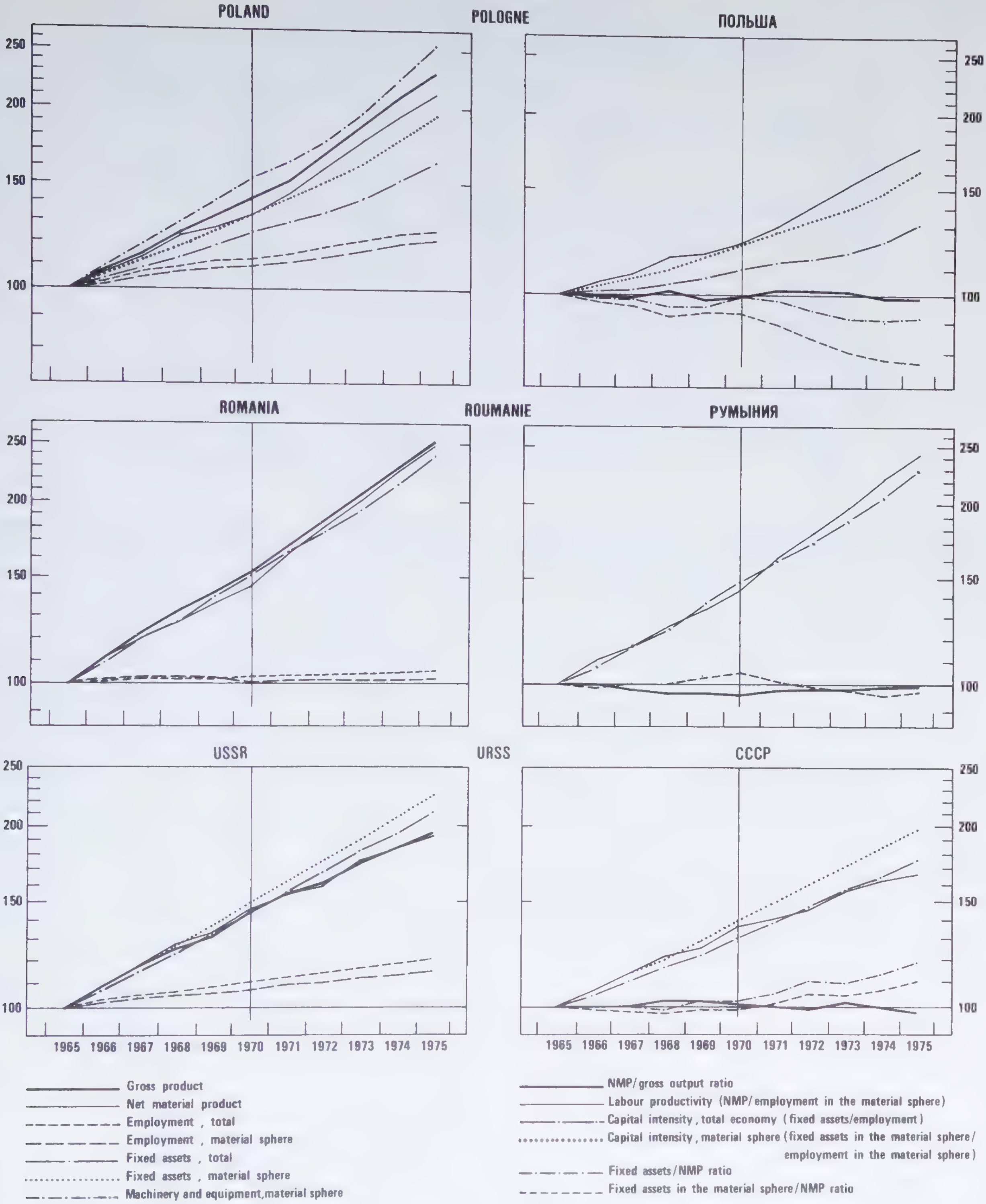


CHART 1.2

Efficiency indicators

(*Indices, 1965 = 100*)





Source: National statistics.

Source: National statistics.

TABLE 1.1

Growth of net material product

(Average annual percentage change over the end year of the previous five-year period)

Country	1966-1970		1971-1975		1976-1980
	Planned	*Actual*	*Planned*	*Actual*	*Planned*
Albania	8.0	9.2	9.2-9.9	6.7	6.7-6.9
Bulgaria	8.5	8.7	7.7-8.5	7.9	7.7
Czechoslovakia	4.1-4.4	6.9	5.1	5.7	4.9
German Democratic Republic	5.4	5.2	4.9	5.4	5.0
Hungary	3,5-3.9	6.8	5.5-6.0	6.3	5.4-5.7
Poland	6.0	6.0	6.7-6.8	9.8	7.0-7.3
Romania	7.0	7.7	11.0-12.0	11.3	10.0-11.0
Eastern Europe[a]	5.6	6.5	6.7	7.8	6.6
Soviet Union	6.6-7.1	7.8	6.5-7.0	5.7	4.7
Byelorussian SSR	9.8	9.1	8.0	8.0	6.0
Ukranian SSR	7.0	6.7	6.6	4.6	4.9
Soviet Union and eastern Europe[a]	6.5	7.4	6.7	6.2	5.3

Sources: National statistics, plans and plan-fulfilment reports, CMEA Statistical Yearbooks.

[a] Excluding Albania

actual rates recorded in the respective preceding five-year periods (6.8 and 6.3 respectively). In one Hungarian source it has been stated that the policy implied by these figures might be treated as a "tradition in Hungary to under-plan possible economic growth". The author explicitly underlines the fact that "all Hungarian experience shows that it is easier to cope with patterns arising from a faster than planned growth".[5] This appears to be a clear case of planning for sub-optimum growth rates. Nevertheless, annual growth rates of NMP in Hungary fluctuated between 5.1 and 7.4 per cent during the period 1971-1975. The policy objective of a smoother pattern of economic growth for 1976-1980 has been particularly emphasized by policy makers.

The *Soviet plan target* for over-all expansion in the period of 1976-1980 (an annual average of 4.7 per cent) has certainly been the result of a change in strategy. The over-all average annual 5.7 per cent rate of growth of NMP in the period 1971-1975 masks wide fluctuations in annual rates:

	Percentage increase over previous year
1971	5.6
1972	3.9
1973	8.9
1974	5.4
1975	4.5
Average 1971-1975	5.7

The investment programme for agriculture, energy and the raw materials-producing sectors, and the planned shift in the consumption/accumulation ratio in favour of consumption[6] have probably had a decisive effect on planned rates of over-all growth and growth in major production sectors. The plan for 1976-1980 has laid down annual plan targets which make it possible to follow the planned pattern of implementation of the policy of maintenance of stable annual growth rates (see text table below). After a peak 5.4 per cent in 1976, all other planned annual targets are below 5 per cent. The sequence of planned annual growth rates for industry, however, follows a different time-path, with the lowest—4.3 per cent—for 1976, and a progressive increase in subsequent years. The targets for construction and freight transport are more stable than for industry. It seems that the annual fluctuations envisaged in rates of over-all expansion are influenced by the fluctuations forecast for agricultural production, but annual targets for agricultural production have not been released. It can at any rate be said that the low target for industry in 1976 is undoubtedly the consequence of the 1975 agricultural year. The long-term forecast of climatic conditions indicates that two years out of the period 1977-1979 might suffer from unfavourable weather conditions.[7] The plan targets for NMP in 1977 and 1980 have been forecast on the assumption that these years will be unfavourable for agricultural production (in 1977 to a greater extent than 1980), with the deceleration effect in the former case forecast for 1978 for industry, but for 1977 for construction and goods transport.

The plan targets for the Byelorussian and the Ukrainian SSRs are based on the same strategy choice as for the whole Soviet Union, but adapted to the specific production structures of the two republics. Annual fluctuations in NMP growth rates in the Ukrainian SSR during the period 1971-1975 were even larger than for the Soviet Union as a whole, with a spread between 2.8 and 9.4. The share of agriculture in the Ukrainian production pattern is relatively high, and agricultural

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[5] B. Csikós-Nagy, "Can accelerated economic growth be maintained?" in *Acta Oeconomica*, No. 3-4, vol. 12, 1974, p. 297.

[6] Consumption/accumulation ratio in the Soviet Union: distributed NMP = 100

1971-1975	*Plan 1976-1980*
73.5: 26.5	75.0: 25.0

[7] For more details and references, see the section on agriculture.

Soviet Union: annual plan targets

(Indices, 1975 = 100; in brackets annual percentage change)

	1976	*1977*	*1978*	*1979*	*1980*	*1976-1980 (average)*
NMP distributed	105.4 (5.4)	109.7 (4.1)	114.6 (4.5)	120.2 (4.9)	126.0 (4.8)	(4.7)
Gross product:						
Industry	104.3 (4.3)	110.9 (6.3)	117.6 (6.0)	125.7 (6.9)	136.0 (8.2)	(6.4)
Construction[a]	107.3 (7.3)	113.6 (5.6)	122.2 (7.6)	131.6 (7.7)	142.0 (7.7)	(7.2)
Freight transport	105.7 (5.7)	111.3 (5.3)	118.2 (6.2)	124.9 (5.7)	132.0 (5.7)	(5.7)
State investment	105.1 (5.1)	108.9 (3.6)	112.1 (2.9)	114.3 (2.0)	114.6 (0.3)	(2.8)

Source: "The law on the state five-year plan for the development of the national economy of the USSR for 1976-1980", in *Izvestiya*, 30 October 1976.

[a] Estimated on the basis of the targets for labour productivity in construction.

production is more exposed to unfavourable climate (drought) than in the Byelorussian SSR. It is for this reason that the targets for 1976-1980 for the growth of NMP in the Ukrainian SSR are set at more than 1 percentage point lower than for the Byelorussian SSR. The spread between growth rates has, however, been reduced in comparison with the spread recorded in the past quinquennium.

Albania has adopted the actual rate recorded in the period 1971-1975 as a target for the growth of NMP for 1976-1980. The fulfilment of this target will be, to a great extent, dependent on fulfilment of the target for the growth of agricultural production (also virtually identical with the actual growth rate 1971-1975). As the latter rate is very likely close to the realistic maximum, it seems that the strategic choice for this country incorporates as a policy objective the maximization of over-all economic expansion. The relatively modest level of the rate reflects specific conditions of general development and of the production structure of the country. It is certain that the principle of national self-reliance has been decisive in the formulation of the strategy of Albanian development.

(iii) Changes in production structures and structural policies

Reference to proportionate growth as a policy objective has been incorporated into the five-year plans for 1976-1980 in all the countries of the region. This is primarily related to so-called consolidation policies aimed at redressing economic imbalances, and maintaining a more even rate of economic development in the future. Foreign trade deficit has been the type of imbalance referred to most frequently. But imbalances between the macro-structures of production and final consumption, and within production structures between input supplying and processing activities, have also been mentioned. In addition, structural factors have a direct effect on efficiency in the utilization of factor inputs. The shortage of manpower, particularly of skilled labour, irregular and inadequate supplies of material inputs, low shift coefficients, a slow pace of technological innovation, in short, all kinds of bottlenecks are very frequently quoted. The redressing of non-optimum combinations of factor inputs is a decisive element in the priorities of global development programmes. Whereas in earlier periods priority programmes usually created new and/or intensified existing structural imbalances, the new strategy is based on a complex approach in priority programmes, taking into account developments in related branches and activities in order to minimize the possibility of bringing about new imbalances.

It has been admitted that proportionate growth may cause a slowdown in over-all expansion. In the long run the increased level of structural proportionality (sometimes called the efficiency of complex development of the economy)[8] could have a decisive role in maintaining a rate of over-all growth at a level close to the optimum (long-term) rate. Nevertheless, the new priorities do not in all instances imply high returns on invested resources.[9]

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[8] P. Alampiev, Yu. Kormnov, V. Maksakovsky, "National-economic structures and the integration of the socialist countries", in *Voprosy Ekonomiki*, No. 9, 1975, p. 59.

[9] M. Timár provides the following indicators of returns on fixed assets in producing sectors for the 1960-1970 period in Hungary (capital-output ratios):

	Stock of fixed assets in forints per 1 forint of NMP		*Index, 1960 = 100*
	1960	*1970*	
Producing sectors, total	2.84	2.82	99.3
Primary sectors	1.87	2.97	158.8
Secondary sectors	1.90	1.95	102.6
Productive services sectors	6.51	5.13	78.8

See M. Timár, "Hungarian economy: structure and trends", in *Marketing in Hungary*, No. 1, 1974.

The effect of the changes in priorities incorporated into the global development programmes for 1976-1980 on the over-all economic expansion of the countries of the region may be illustrated by the changes in the indicators relating expenditure on gross fixed capital formation to the increase in NMP (see text table below).

Gross investment ratio (IR)
(percentage)

Country	*1966-1970*	*1971-1975*	*Plan 1976-1980*
Bulgaria	35.1	35.1	30-32
Czechoslovakia	31.1	33.7	31-33
German Democratic Republic	27.6	28.7	29.1
Hungary	32.9	35.9	36.5
Poland	25.3	36.4	31.1-31.3
Romania	28.8	34.1	33-34
Soviet Union	27.0	29.9	29.5-30.1

Gross incremental capital-output ratio (ICOR)
(coefficient)

Country	*1966-1970*	*1971-1975*	*Plan 1976-1980*
Bulgaria	4.0	4.5	4.0
Czechoslovakia	4.5	5.9	6.3
German Democratic Republic	5.3	5.3	5.8
Hungary	4.8	5.7	6.5
Poland	4.2	3.7	4.3-4.4
Romania	3.7	3.0	3.1-3.3
Soviet Union	3.5	5.2	5.7-6.8

Sources: As for table 4.1.

The gross fixed investment ratios for 1976-1980 show only slight changes—less than 1 percentage point—in comparison with the 1971-1975 figures for Czechoslovakia, the German Democratic Republic, Hungary, the Soviet Union and Romania. Relative changes in ICORs are, however, more pronounced. With the exception of Romania, the implicit planned ICORs of these countries are roughly at a similar level (6-6.5) and show an upward tendency. In Romania, the estimated ICOR for 1976-1980 is slightly higher than the figure for 1971-1975, but remains close to a coefficient of three units. Increases in ICORs can be related to shifts in the structure of development programmes in favour of branches and activities with a relatively low return on fixed investment outlays. When related to rates of growth of NMP, such increases are associated with a relative slowdown in over-all expansion. If the structural shifts in priorities towards raw materials, fuel and energy-production branches, agriculture and construction were not so pronounced, the more or less unchanged investment ratios would ensure that growth rates of NMP would remain largely at the level recorded during the period 1971-1975.

The development programmes for 1976-1980 in Bulgaria and Poland differ from the pattern described above. In both countries, IRs have been considerably reduced, more so in Poland than in Bulgaria. This is reflected in a considerable drop in the NMP target for 1976-1980 in relation to actual NMP growth during the period 1971-1975 in Poland. Implicit trends in ICORs for these two countries do, however, diverge. In Poland the trend is upward, indicating the same pattern of priorities in development programmes as in the other countries of the region; in Bulgaria the ICOR for 1976-1980 should decrease. This means that the structural shifts implied in development programmes favour projects with a high return on gross fixed investment. The dominant share of this type of project in the development programme incorporated into the 1976-1980 plan has allowed for the planned rate of growth of NMP in Bulgaria to remain virtually at the 1971-1975 level, in spite of a considerable reduction in the rate of gross fixed investment. These strategic elements in the Bulgarian plan are linked to the introduction of the so-called multiplicative approach to complex planning in investment, which should raise the global return on invested resources.[10]

The effects of policies on the allocation of gross fixed investment cannot be directly related to trends and developments in aggregate (individual and social) consumption. The net material product is allocated to expenditures on consumption and *accumulation* (net investment, including increases in stocks). Annual changes in the interrelationships of the two magnitudes for the period 1965-1975 are shown in chart 1.3.

Net investment ratios (the percentage share of net investment in distributed NMP) for 1976-1980 are not available for all the countries of the region, but the data in table 1.2 do not indicate any substantial shift in favour of net investment (net capital formation). On the contrary, the relative share of aggregate consumption is planned to increase in Bulgaria and the Soviet Union, and to remain virtually at the 1971-1975 level in Romania and Hungary.

Sectoral structures and policies. The development programmes incorporated into the five-year plans for 1976-1980 refer to policies for change in production structures. There are two dimensions to these structures: sectoral and regional. The first one relates to structure by types of activities within the material sphere. The increased dependence of the economies of the area on economic relations with the rest of the world and, in particular, the increased importance of co-operation within the CMEA area have also given a new dimension to structural policies. (The regional dimension of the structure of national economies is discussed in the section on investment.)

The new five-year plans have not modified the global strategic orientation based on accelerated industrialization with the priority on producer-goods branches, but there have been adjustments in industrialization policies. At the contemporary stage of economic development, industrialization as a policy objective has been extended to non-industrial activities in all the east European countries and the Soviet Union. The need to introduce industrial methods and machine-related technology and organization of labour in agriculture, construction, transport, and trade has been generally recognized. The impact of these changes on the structural policies of the

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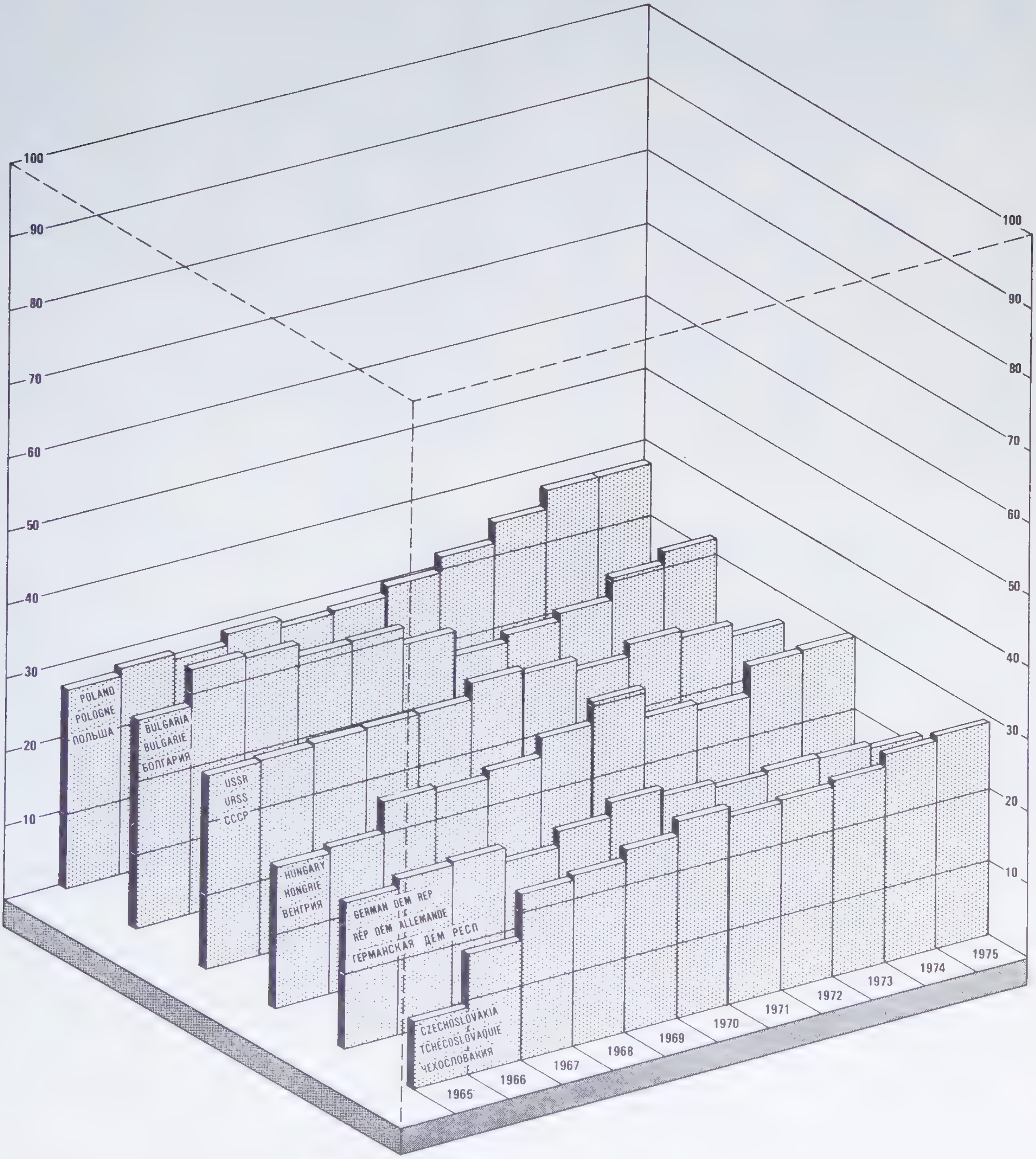
[10] See the report of the Prime Minister of Bulgaria on the 1976-1980 plan in *Rabotnichesko Delo*, 28 October 1976.

CHART 1.3

Net investment as percentage of NMP

(*NMP = 100*)



Sources: CMEA Statistical Yearbook 1971 and *1976*.

five-year plans is evident, and reference is continually made to the complex approach, and to comprehensive solution of particular development programmes.

Industry as a whole is still planned to expand at a pace exceeding that of over-all expansion, with Romania as the only exception (table 1.3). Relative growth coefficients of industrial output (the ratio of the growth rate of industrial gross output to the growth rate of NMP) for 1976-1980 are higher than the respective coefficients for 1971-1975 (see text table below).

Relative growth coefficients in industry

Country	*Plan 1971-1975*	*1971-1975*	*Plan 1976-1980*
Albania	1.08	1.30	1.06-1.07
Bulgaria	1.16-1.19	1.14	1.19
Czechoslovakia	1.18	1.16	1.16-1.22
German Democratic Republic	1.22	1.20	1.20
Hungary	1.00-1.04	1.03	1.05-1.11
Poland	1.22-1.25	1.06	1.16-1.17
Romania	1.00	1.14	1.02
Soviet Union	1.14-1.23	1.30	1.36
Byelorussian SSR	1.20	1.30	1.23
Ukrainian SSR	1.12	1.54	1.20

Sources: As for table 1.1.

The value of the coefficients do not show any association with the level of economic development of the respective countries. Values between 1.15 and 1.25 are most common (Bulgaria, Czechoslovakia, the German Democratic Republic, Poland). The Soviet Union plans to speed up industrial expansion in relative terms. The coefficient of 1.3 for 1971-1975 was already among the highest in the region (largely because of the relative lagging behind of agriculture), but in spite of plans to improve the rate of agricultural expansion, the 1976-1980 plan provides for a further acceleration in industrial expansion in relative terms, with a coefficient of 1.36. Hungary has followed a policy of slight acceleration in relative terms, but the coefficient is still among the lowest in the region. Romania and Poland have planned a revision in the relative pace of industrial expansion by reversing actual trends and bringing them closer to the relative growth coefficients planned for 1971-1975. The relative pace of industrial expansion in Albania reflects a new policy direction, which does not deny the leading role of industry, but underlines the fundamental place of agriculture in the Albanian economy. (See the report of the Prime Minister of Albania on the five-year plan for 1976-1980.)

These trends will be reflected in a further increase in the share of industrial output in NMP, which in 1975 exceeded 50 per cent in all countries of the region, except Hungary (47 per cent). (Table 1.4 contains figures for the share of industry in NMP, in total active population, and in fixed assets.) The data available on the planned share of industry for 1976-1980 are very sparse, and in most cases based on gross output. In the Soviet Union, for instance, the relative share of industry in terms of gross output should increase from 66 in 1975 to 68 in 1980. A planned share of 60 per cent in 1980 has been reported for Bulgaria.

The plans contain extensive development programmes at the level of *intra-branch industrial structures* (for more detail on structural problems in industry see sections on industry and investment). There are several complexes within the industrial structure which have obtained high priority. The first relates to engineering and chemicals as branches promoting technological innovation in all sectors of the national economy, and also supplying considerable export surpluses. This is closely connected with the development of co-operation and specialization within the CMEA framework. The second complex relates to development in sectors supplying energy and fuel and key raw materials. The relative share of engineering, chemicals and electrical energy in the industrial structure will considerably increase in all countries.

In the Soviet Union, the general trends are as follows:

Percentage share of engineering, chemicals and electrical energy in total gross output in the Soviet Union

1965	27
1970	31
1975	36
Plan 1980	41

Sources: National statistics and the five-year plan for 1976-1980.

These complexes continue to be treated as the core of long-term economic strategy,[11] and the new five-year plan has not changed their priority ranking. But their internal structure has been to a great extent modified and adapted to the requirements of comprehensive application and implementation of up-to-date technology.

The third field of high priority is the complex of branches producing consumer goods. An increasing share of production on the part of heavy industry is characteristic of structural changes within this complex.[12] In addition, special programmes for increasing production of consumer goods and improving their quality have been elaborated in almost all the countries of the region.

For the east European countries, the 1976-1980 five-year plans contain a great deal of concrete information on development policies in the industrial branches mentioned above. The long-term and priority character of these policies has been particularly confirmed by the elaboration of special central development programmes in these fields in most of the east European countries. In Czechoslovakia, for instance, more than 40 production

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[11] L. Abalkin, "The economic strategy of the Party in the stage of advanced socialism, and aspects of its implementation during the tenth five-year plan", in *Ekonomicheskie Nauki*, No. 9, 1976, pp. 96-97.

[12] In 1975 in the Soviet Union, for instance, the share of heavy industry in total production of consumer goods was 28.2 per cent, whereas that of light industry was 26.6 per cent, and that of food processing 45.2 per cent. See *Ekonomicheskaya Gazeta*, No. 6, 1977.

TABLE 1.2

Changes in domestically distributed net material product

(*Percentage distribution; distributed NMP = 100*)

Country and period	Consumption			Net capital formation		
	Total	Personal	Social	Total	Net fixed capital formation	Changes in stocks
Bulgaria						
1966-1970	67.0	64.4	2.6	33.0	20.0	13.0
1971-1975	71.9	68.2	3.7	28.1		
Plan 1975-1980	74.0			26.0		
Czechoslovakia[a]						
1966-1970	76.7	58.8	17.9	23.3	13.8	9.5
1971-1975	73.0	54.2	18.8	27.0	18.5	8.5
German Democratic Republic						
1966-1970	78.4	69.4	9.0	21.6	18.6	3.0
1971-1975	77.6	67.3	10.3	22.4	18.8	3.6
Hungary						
1966-1970	76.5	68.1	8.4	23.5	15.5	8.0
1971-1975	75.5	66.3	9.2	24.5	19.7	4.8
Plan 1976-1980	73.0-75.0			27.0-25.0		
Poland						
1966-1970	72.3	62.0	10.3	27.7	21.3	6.4
1971-1975	65.0	54.9	10.1	35.0	27.8	7.2
Romania						
1966-1970	71.2	..	..	28.8	..	..
Plan 1971-1975	68.0-70.0	..	..	30.0-32.0	..	..
1971-1975	65.9	..	..	34.1	..	..
Plan 1976-1980	66.0-67.0	..	..	33.0-34.0	..	..
Soviet Union						
1966-1970	71.9	44.4	27.4	28.1	16.6	11.5
1971-1975	73.8	42.6	31.2	26.2	16.5	9.7
Plan 1976-1980	75.4	41.3	34.1	24.6	15.2	9.3
Byelorussian SSR						
1966-1970	68.4	50.6	17.8	31.6	15.7	7.9
1971-1975	75.0	55.5	19.5	25.0	14.3	10.7
Plan 1976-1980	78.0	57.7	20.3	22.0	13.4	8.5
Ukrainian SSR						
1966-1970	74.1	55.8	18.3	25.9	15.7	10.2
1971-1975	73.0	55.0	18.0	27.0	16.9	10.1
Plan 1976-1980	78.0	57.7	20.3	22.0	14.7	7.3

Sources: As for table 1.1.

[a] At current prices.

programmes have been selected to "ensure positive changes in the micro-structure of industrial production". The share of these programmes in total industrial production in 1975 was 12.5 per cent, and higher in the engineering (28.4 per cent) and consumer goods (15.2 per cent) industries.[13] Poland has elaborated 92 key projects

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[13] "Czechoslovakia between the 14th and 15th Congresses of the Communist Party of Czechoslovakia", in *Czechoslovak Economic Digest*, No. 1, February 1976, p. 28.

TABLE 1.3

Growth of gross product by kind of activities in the material sphere

(Average annual percentage change over the end year of the previous five-year period)

Country and period	*Total*	*Agriculture* [a]	*Industry*	*Construction*	*Transport*	*Trade*
Albania					b	c
1966-1970	..	5.9	12.9	..	..	7.7
1971-1975	6.5	5.9	8.7	9*	7.7*	6.2
Plan 1976-1980	..	6.7-7.1	7.1-7.6	..	5.4-5.7	4.1-4.6
Bulgaria						
1966-1970	9.6	4.8	10.9	12.0	10.5	10.9
1971-1975	7.8	2.2	9.0	5.8	11.1	13.6
Plan 1976-1980		3.7	9.2	..	..	..
Czechoslovakia	d				d	d
1966-1970	6.7	3.5	6.8	7.9	3.4	10.6
1971-1975	5.7	2.9	6.6	8.2	4.9	5.6
Plan 1976-1980		2.7-2.8	5.7-6.0	6.2-6.5	..	..
German Democratic Republic						
1966-1970	6.3	1.9	6.5	8.3	9.1	3.5
1971-1975	6.0	2.1	6.5	5.1	4.7	5.9
Plan 1976-1980		3.0*	6.0	5.0	..	..
Hungary						
1966-1970	6.4	2.8	6.3	10.7	7.2	9.4
1971-1975	6.2	3.4	6.5	5.4	6.2	6.9
Plan 1976-1980		3.2-3.4	6.0	5.5-6.0	..	..
Poland						e
1966-1970	7.2*	2.9	8.3	8.6	8.8	6.1
1971-1975	10.1*	3.1	10.4	13.9	11.2	11.0
Plan 1976-1980	..	3.0-3.5	8.2-8.5	7.4-7.7	..	..
Romania					f	
1966-1970	8.8	4.2	11.9	11.5	9.2	8.4
1971-1975	10.6	4.6	12.9	6.9	11.1	8.2
Plan 1976-1980	8.5-9.5	5.1-7.6	10.2-11.2	..	..	..
Soviet Union						
1966-1970	7.4	3.9	8.5	7.4	6.7	8.0
1971-1975	6.3	2.5	7.4	6.0	6.4	6.4
Plan 1976-1980	5.9*	2.7-3.2	6.3	7.2	5.7	..
Byelorussian SSR						
1966-1970	7.7	5.7	12.4	9.9	7.4*	11.1
1971-1975	8.2	2.6	10.4	6.2	6.5*	7.4
Plan 1976-1980	5.7*	2.3	7.4	6.5	..	..
Ukrainian SSR						
1966-1970	6.7	3.2	8.3	7.5	5.4	8.2
1971-1975	5.7	2.9	7.1	6.6	3.8	6.2
Plan 1976-1980	5.1*	2.5	5.9	7.1	..	..

Source: As for table 1.1.

Note: Agriculture includes forestry. Transport includes communications.

[a] Average annual percentage changes calculated on the basis of previous five-year period total.

[b] Freight transport.

[c] Retail trade only.

[d] Global product.

[e] Trade in terms of net material product.

[f] Transport in terms of net material product.

Table 1.4

Structure of the national economy by activities in the material sphere: net material product, active population and fixed assets

(Percentage share; material sphere = 100)

	1965			*1970*			*1975*		
	NMP	*Active population*	*Fixed assets*	*NMP*	*Active population*	*Fixed assets*	*NMP*	*Active population*	*Fixed assets*
Bulgaria									
Agriculture	33.4	50.8	24.1	22.6	41.1	20.5	21.9	34.2	18.2
Industry	45.0	29.5	46.3	49.1	34.9	52.3	51.3	39.2	54.4
Construction	7.3	7.8	2.2	8.7	9.7	2.9	8.8	9.5	3.4
Transport	4.5	5.7	24.2	6.9	6.9	20.8	8.2	7.4	19.8
Trade	7.7	5.8	3.1	9.9	7.0	3.4	7.8	9.2	3.9
Residual	2.1	0.4	0.1	2.8	0.4	0.1	2.0	0.5	0.1
Czechoslovakia									
Agriculture	12.0	25.5	11.6	10.1	22.6	11.9	8.3	19.0	12.3
Industry	66.4	56.0	54.4	62.1	57.3	55.1	64.4	59.5	56.1
Construction	9.3			11.3			12.1		
Transport	2.4	8.0	27.9	3.8	8.4	26.4	2.2	8.1	24.4
Trade	8.5	10.2	6.1	11.3	11.2	6.6	11.9	12.3	7.2
Residual	1.4	0.3		1.4	0.5		1.1	0.6	
German Democratic Republic									
Agriculture	13.8	18.4	13.1	11.6	15.5	13.6	10.0	13.9	13.0
Industry	59.2	56.9	63.0	60.7	59.2	64.3	62.2	60.0	65.9
Construction	7.4			8.2			8.0		
Transport	5.4	8.8	18.4	5.2	9.1	16.5	4.9	9.4	15.2
Trade	12.5	13.8	5.5	12.6	13.4	5.6	13.3	13.1	5.7
Residual	1.7	2.1		1.6	2.8		1.6	3.6	
Hungary									
Agriculture	24.2	35.3	14.4	17.7	31.1	15.8	16.3	27.3	18.9
Industry	42.1	47.8	41.0	43.2	50.9	44.1	47.0	52.7	45.3
Construction	10.7			12.1			12.9		
Transport	6.0	8.2	32.3	6.5	8.5	28.7	6.1	9.2	24.1
Trade	13.7	8.7	12.3	15.0	9.5	11.4	15.0	10.8	11.7
Residual	3.3	–		5.5	–		2.7	–	
Poland									
Agriculture	23.2	44.4	32.5	17.5	39.8	29.3	12.6	35.7	25.5
Industry	45.0	29.3	38.7	49.8	31.7	42.4	52.1	32.5	46.3
Construction	10.2	9.0	2.2	11.4	10.6	2.8	13.3	12.9	3.7
Transport	6.3	7.7	19.9	6.5	8.0	18.6	7.4	8.1	17.7
Trade	11.5	6.8	3.4	11.8	6.3	3.8	12.6	7.6	3.1
Residual	3.8	2.8	3.3	3.0	3.1	3.1	2.0	3.2	3.7
Romania									
Agriculture	28.3	62.4	21.9	19.1	54.9	18.4	16.6	43.0	15.8
Industry	48.6	28.1	54.6	58.6	34.3	51.8	57.1	43.7	62.1
Construction	8.4			11.1			8.4		
Transport	5.7	4.5	19.6	5.8	5.3	18.7	5.6	6.3	17.3
Trade	7.5	4.4	3.9	3.5	4.8	4.8	10.6	6.2	4.8
Residual	1.5	0.6		1.9	0.7		1.7	0.8	
Soviet Union									
Agriculture	22.7	37.9	21.4	22.0	31.7	20.0	16.8	29.1	20.9
Industry	51.7	34.9	46.7	51.1	37.7	48.0	52.7	37.6	47.8
Construction	9.3	8.5	3.3	10.4	10.0	4.2	11.4	10.9	4.3
Transport	6.0	9.8	23.0	5.6	10.3	22.0	6.3	11.3	21.3
Trade	5.9	7.7	5.6	6.2	9.1	5.8	6.5	9.9	5.7
Residual	4.4	1.2		4.7	1.2		6.3	1.2	

Sources and notes: As for table 1.3.

in which investment expenditures should be concentrated. In Hungary, the most important development programmes refer to the utilization of natural gas, petro-chemicals, aluminium industries, manufacturing of public-utility vehicles, computer techniques, and the application of complex building methods with light structures.[14] Five priority programmes in the German Democratic Republic relate to the production of machinery and equipment, to the utilization of domestic energy resources and raw materials, to production of consumer goods, to that of components and parts for machinery, and to export-oriented branches. In Romania, besides the basic priorities in industrial development programmes, special attention is being paid to the building up of labour-intensive industries with a view to improving regional structures of employment and stimulating increased employment of female labour.

Co-operation within the CMEA has been intensified in the same branches. Five joint, goal-oriented (*tselevoi*) programmes for a period of 10 to 15 years were approved at the 30th Session of the CMEA in July 1976. The programmes refer to co-operation (1) in fuel, power and raw-material-supplying branches (including the building up of nuclear power production and engineering); (2) in machine building (75 per cent of the items included in the nomenclature of machine building should be produced in no more than two countries, and about half in only one country); (3) in the food complex; (4) in the industrial consumer-goods complex; and (5) in the development of transport infrastructure.[15]

Development programmes in the five-year plans for 1976-1980 relating to *agriculture* are influenced a great deal by trends towards the formation of an agro-industrial complex, i.e. of increasing the level of integration of agriculture with the other sectors of the national economy. The decline in the share of agriculture in total output will continue owing to considerably lower rates of growth in relation to those of over-all expansion. Within agriculture, priority is being given to crop production in the majority of countries. Only in Bulgaria has priority to the livestock sector been explicitly mentioned. The production of grains has remained the key strategic issue in agricultural development. In addition, programmes for expansion of production of non-grain crops, particularly of vegetables, fruit, sugar-beet and fodder crops, have gained in importance in comparison with the previous five-year period. (For details, see section on agriculture.)

Construction is a sector where development programmes are not highly elaborated in published documents referring to the five-year plans. The inter-country pattern of relative growth coefficients during the period 1971-1975 indicates a relative lagging behind of construction, at least in Hungary, Bulgaria and Romania (see text table below). This fact is fully recognized in Hungary, where construction has been mentioned as the biggest bottleneck in the macro-structure of the national economy. Complaints about the unsatisfactory situation in construction have also been reported in Bulgaria, where the recent organization of a national construction complex indicates an increasing concern on the part of policy makers with the development problems of this sector. In Romania, the situation is very likely also strained, owing to the high rates of over-all expansion of the country's economy. In other countries also, Czechoslovakia and the Soviet Union, for instance, measures aiming at stepping up efficiency in construction have been applied. (For details see sections on investment in this volume and in Part I, chapter 2.)

The data on the share of construction in NMP, active population and fixed assets confirm that construction has remained, in relative terms, far behind the development of industry[16] (table 1.4). In all countries where separate data on construction are available (Bulgaria, Poland and the Soviet Union) a very high level of labour intensity and a very low level of fixed assets intensity in relative terms are common characteristics of the factor input mix in this branch. Development programmes aimed at the introduction of industrial methods in construction are largely in the initial stage.

Relative growth coefficients in construction

	Plan 1971-1975	*1971-1975*	*Plan 1976-1980*
Albania	0.78	..	..
Bulgaria	..	0.73	..
Czechoslovakia	1.31	1.44	1.26-1.33
German Democratic Republic	1.02	0.94	0.98-1.02
Hungary	1.27-1.33	0.85	1.02-1.05
Poland	..	1.42	1.06
Romania	..	0.61	..
Soviet Union	1.07-1.15	1.05	1.53
Byelorussian SSR	..	0.78	1.08
Ukrainian SSR	..	1.43	1.45

Sources: As for table 1.1.

Another major sector where a new approach is reflected in development programmes is *transport*. The targets for 1976-1980 here are not complete, and very rarely provide global indicators for freight and passenger transport. Past structures show unusually low shares for transport in NMP in the most developed countries of the region, Czechoslovakia and the German Democratic Republic. It seems, however, that the low level of tariffs for transport services has been largely responsible for this. The data on the share of transport in active population and fixed assets suggest strongly that in most countries prices ruling in this sector have been below the level of wholesale prices in industry.[17]

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[14] It has been underlined that "in comparison with previous periods, it was an improvement that the plan identified only a few *central development programmes*, those that actually promote the intensity of the economy", see B. Csikós-Nagy, *op. cit.*, p. 301.

[15] O. Rybakov, *op. cit.*, pp. 65-70.

[16] Active population is synomonous with labour force or total employment, i.e. includes wage- and salary-earners, collective farmers and persons employed outside the socialist sector.

Special programmes for transport have recently been worked out in some countries, and changes in the management pattern implemented. In Bulgaria, the formation of a unified national transport system is under way. In Poland, special long-term programmes of development for the period up to 1982 were approved in November 1975. High priority has been given to railway development, and to a massive port construction programme. In the Soviet Union, the Central Committee of the Communist Party and the Council of Ministers have recently approved a special decree on the development of railways during 1976-1980.[18] The process of building up infrastructure for transporting energy and fuel is being accelerated. As mentioned earlier, co-operation within the CMEA area has taken on primary importance in the field of transport and a recently approved long-term programme aims at the co-ordination of transport policies in the member countries with a time horizon of 1990. A wagon pool has now been established. Co-ordination in the building of highways is another important component of the joint programme.

Another aspect of macro-economic structure is related to the share of the activities of the *non-material sphere* in the total economy. As output data for the non-material sphere do not exist,[19] the relative share of this sphere can be shown only in terms of active population and fixed assets (table 1.5). The trends in active population indicate an increasing share of employment for the non-material sphere in all the countries of the region. The plans for 1976-1980 support this development and, in some countries, the entire increase in manpower expected during the quinquennium will be employed in activities in the non-material sphere (excluding employment in government activities). As far as fixed assets are concerned, the global data indicate that relative shares are declining. This decline can be fully accounted for by changes in the relative share of dwelling stock. Fixed assets in the activities of the non-material sphere, net of housing stock, show an upward trend, but the pace is lower than that of increase of employment, which is in accordance with the relatively high labour intensity of these activities.

The social programmes of the 1976-1980 plans incorporate programmes of investment for the activities of the non-material sphere, but published targets are sparse. The few data available on global trends indicate that the pattern of planned investment spending does not involve an accelerated pace of expansion in the non-material sphere in most countries. In Romania, for instance, the plan envisages that 90 per cent of state investment spending will be allocated to the material sphere.

(iv) Factor inputs and efficiency

In all the five-year plans for 1976-1980 *labour productivity* takes on the most prominent role as an element in the planned growth of national product. Targets implying a 90 to 100 percentage share in the increase of NMP attributable to increases in social labour productivity are stipulated in almost all countries. Accordingly, the labour force in the material sphere is planned to remain at the 1975 level or to increase at rates considerably below 1 per cent.

As additional supplies of labour and material inputs (raw materials, energy and fuel and capital goods) become scarcer in relation to the requirements of over-all economic expansion, policies are more and more directed towards the rational use of factor inputs (promotion of labour-, material-, energy-, and capital-saving technologies), and towards increased efficiency, not only of particular factors but in global terms. Special attention has been paid to the quality factor at all levels and stages of the production processes. These new elements are accentuated to such a degree that the five-year plans for 1976-1980 cannot be treated just as plans based on a strategy of intensive growth—they are also plans based on a strategy of *quality of growth*.[20]

The foundation for such a policy orientation has been provided by recent developments in supplies of production factors and by future prospects in this field. Past trends relating to factor input and efficiency indicators for the decade between 1965 and 1975 are presented graphically in charts 1.1 and 1.2. The data pertain to global indicators for active population and fixed assets. Structural problems related to employment and fixed assets in industry and agriculture are treated in subsequent sections.

Past trends in the *labour force* (active population) for the whole economy and for employment in the material sphere have been characterized by a very slow rate of growth in most of the countries of the region. An average annual percentage increase below a level of 0.5 per cent was recorded in the German Democratic Republic and Romania over the whole 1965-1975 decade, and in Hungary and Bulgaria (material sphere only) in the second half of the decade (table 1.6). In Czechoslovakia,

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[17] Statistical data on the relationship between prices of industrial products and those of transport services are not available. However, a comparison of differences in relative labour productivity and capital intensity in industry and transport indicate a distortion in price relatives between these two branches. In 1975 in Poland, for instance, the relative coefficients were as follows (national economy = 1):

	Industry	*Transport*
NMP—labour ratio	1.60	0.91
NMP—fixed assets ratio	1.13	0.42
Fixed assets—labour ratio	1.42	2.19

Source: Computed on the basis of data in table 1.4.

[18] "On measures for the development of rail transport in the period 1976-1980", in *Izvestiya*, 13 February 1977.

[19] According to the methodology applied in national (macro-economic) accounting in east European countries and the Soviet Union, services in the non-material sphere are not included in the formation of gross or net output (material product). See *Studies in Methods, Basic Principles of the System of Balances of the National Economy*, United Nations, New York, 1971, Series F, No. 17.

[20] The importance of transition to "all-round" (*vseobshcha*) intensification of economic growth in the period 1976-1980, as a qualitative change in global development strategy, was underlined in the discussion on problems of economic growth in Bulgaria held in the Economic Institute of the Bulgarian Academy of Science in March 1976. See P. Dobrev, "Scientific conference on problems of economic growth", in *Ikonomicheska Mis"l*, No. 6, 1976, pp. 109-110. (In Bulgarian.)

TABLE 1.5

Active population and fixed assets in the material and non-material spheres

(Percentage share, total = 100)

	Active population			*Fixed assets*		
	1965	*1970*	*1975*	*1965*	*1970*	*1975*
Bulgaria						
Material sphere	89.2	86.9	84.6	58.5	64.4	67.6
Non-material sphere	10.8	13.1	15.4	41.5	35.6	32.4
of which: Housing				30.0	23.6	19.8
Non-material sphere excluding housing				11.5	12.0	12.6
Czechoslovakia						
Material sphere	79.8	78.2	77.4	65.3	66.6	66.7
Non-material sphere	20.2	21.8	22.6	34.7	33.4	33.3
of which: Housing	0.9	1.1	1.1	23.9	22.5	21.9
Non-material sphere excluding housing	19.3	20.7	21.5	10.8	10.9	11.4
German Democratic Republic						
Material sphere	83.5	82.6	80.9	55.4	59.1	63.6
Non-material sphere	16.5	17.4	19.1	44.6	40.9	36.4
Hungary						
Material sphere	84.3	84.8	83.3	56.1	58.9	62.3
Non-material sphere	15.7	15.2	16.7	43.9	41.1	37.7
of which: Housing				32.7	29.5	26.7
Non-material sphere excluding housing				11.2	11.6	11.0
Poland						
Material sphere	86.5	85.1	83.7	52.5	56.3	62.2
Non-material sphere	13.5	14.9	16.3	47.5	43.7	37.8
of which: Housing	2.3[a]	2.6[a]	3.0[a]	32.2	29.2	25.5
Non-material sphere excluding housing	11.2	12.3	13.3	15.3	14.5	12.3
Romania						
Material sphere	89.8	89.7	88.5	61.7	68.5	72.1
Non-material sphere	10.2	10.3	11.5	38.3	31.5	27.9
of which: Housing				25.2	24.8	19.7
Non-material sphere excluding housing				13.1	6.7	8.2
Soviet Union						
Material sphere	81.5	79.4	78.0	59.9	61.7	64.1
Non-material sphere	18.5	20.6	22.0	40.1	38.3	35.9
of which: Housing				26.5	23.7	21.3
Non-material sphere excluding housing				13.6	14.6	14.7
Byelorussian SSR						b
Material sphere	85.3	83.4	81.6	59.6	62.6	64.8
Non-material sphere	14.7	16.6	18.4	40.4	37.4	35.2
of which: Housing				28.8	25.5	22.6
Non-material sphere excluding housing				11.6	11.9	12.6
Ukrainian SSR						
Material sphere	83.6	81.1	79.3	59.2	62.5	64.5
Non-material sphere	16.4	18.9	20.7	40.8	37.5	35.5
of which: Housing				28.9	24.8	22.2
Non-material sphere excluding housing				11.9	12.7	13.3

Sources: As for table 1.1.

[a] Including communal services.

[b] 1973.

TABLE 1.6

Active population and labour productivity

(For active population index, previous five-year period = 100; for labour productivity average annual percentage change)

	1966-1970					*1971-1975*					*Plan 1976-1980*		
	Active population					*Active population*					*Active population*		
		Material sphere					*Material sphere*						
Country	*Total*	*Total*	*Excluding agriculture*	*Non-material sphere*	*Labour productivity*	*Total*	*Total*	*Excluding agriculture*	*Non-material sphere*	*Labour productivity*	*Total*	*Material sphere*	*Labour productivity*
Bulgaria	105.3	102.6	122.8	127.7	8.1	104.1	101.3	113.2	122.2	7.5	102*	100.0	7.7*
Czechoslovakia	108.6	106.4	110.7	117.3	5.5	105.7	104.6	109.8	109.6	4.6	102.3*	..	4.5*
German Democratic Republic	101.2	100.1	103.5	107.2	5.0	102.3	100.3	102.3	111.5	5.3	..	..	4.9*
Hungary	107.1	107.8	114.8	104.8	5.1	102.1	100.3	105.8	112.0	6.2	101.0*	100.0	5.4-5.7
Poland	112.2	110.3	120.5	124.4	4.0	111.7	109.9	117.5	121.6	7.8	106.2*	..	5.9-6.1
Romania	102.0	101.3	116*	101.4	7.3	102.8	101.3	128.1	115.6	11.1	..	..	8.5-9.0[a]
Soviet Union	109.5	106.8	117.3	122.0	6.3	109.6	107.7	111.3	117.1	4.1	..	..	4.6*
Byelorussian SSR	110.0	107.6	129.4	124.1	7.5	109.6	107.0	117.5	103.7	6.6	..	..	..
Ukrainian SSR	107.2	104.4	120.3	123.2	5.8	106.3	104.2	110.4	116.3	3.7	..	..	..

Sources: As for table 1.1.

[a] Industry.

a pronounced slackening in the growth of employment was recorded during the period 1971-1975. Only Poland and the Soviet Union have maintained a relatively high rate of growth of labour force (2.2 and 1.8 per cent respectively) over the whole decade under review.

Data on future trends are not available for all countries. However, forecasts do not indicate any likely improvement in labour supplies — downward trends will most likely dominate. In that regard, even Poland, a country that has at its disposal ample labour resources, might in the future join the group of countries with an average annual increase not exceeding 0.2-0.3 per cent.

The forecasts for Hungary and Bulgaria do not indicate any improvement in the strained situation with respect to labour supplies for 1976-1980. The planned increase in manpower for 1976-1980 in Bulgaria (77,000 or 0.3 per cent average annual percentage increase) is less than half the actual increase in 1971-1975 (170,000). Employment in the material sphere is planned to remain unchanged. For Hungary, it has been forecast that the total increase in active population for the 1975-1990 period might be around 150,000 persons (an average annual percentage increase of about 0.2 per cent). The trends forecast for active population in Czechoslovakia show a steeply declining tendency: the growth in active population for 1976-1980 might be around 200,000 persons, roughly a half of the increase in the period 1971-1975. The declining tendency might continue at the same pace, which would result in a sharp decrease in the growth of active population to 80,000 during the 1981-1985 period. A reversal of this trend is not expected before 1985. The trends in active population forecast for Poland are similar to trends in Czechoslovakia with a time-lag of one quinquennium. The growth of active population might increase by between 1 and 1.1 million persons during the period 1976-1980 (average annual percentage increase of 1.2 per cent), and by about 400 thousand only (0.4 per cent per annum) during the period 1981-1985, with a tendency to further decline. It is possible that this trend will be reversed only in the last decade of the century. Data on increases in active population in absolute figures are shown in the text table below:

Increase in active population

(In thousands, for five-year period)

	1966-1970	*1971-1975*	*Forecast 1976-1980*	*Forecast 1981-1985*
Bulgaria	208	169	77	
Czechoslovakia . . .	556	402	200	80
German Democratic Republic	92	179	300	
Hungary	331	105	50-60	
Poland	1 654	1 771	1 000-1 100	400
Romania	191	275	. .	
Soviet Union	10 090	11 170		
Byelorussian SSR . .	402	425	. .	
Ukrainian SSR . . .	1 564	1 465	. .	

Sources: As for table 1.1.

Decreases in the active population are the result not only of demographic changes in the previous period, but also of employment policies. The need for additional manpower has resulted in policies of stimulating employment of the working age population of both sexes. Participation rates (active population as percentage of total working age population) were already 80 per cent or more in 1975. The most considerable changes have occurred in relation to female employment.[21] The participation rate of the female population has now reached a level which does not differ significantly from that of the male population (see text table below):

	Active population as percentage of working age population in 1975			*Non-active population as percentage of total population in 1975*
	Total	*Female*	*Male*	
Bulgaria	82.6	. .	. .	50.5
Czechoslovakia . . .	88.2	86.5	88.7	50.2
German Democratic Republic	79.1	78.7	79.5	52.7
Hungary	79.8	71.7	87.5	51.6
Poland	85.0	. .	. .	50.2
Soviet Union	89.0	. .	. .	50.1

Bringing in additional labour resources through the employment of pensioners and older people can only marginally influence the general trends. In Czechoslovakia, however, the number of employed persons of post-retirement age has reached 600 thousand in recent years (8-10 per cent of total active population). In the Soviet Union, a decree on stimulating the employment of pensioners was passed in 1973.[22] Strains on the labour market are being intensified by the introduction of measures that will considerably reduce the available work force. Among the most important of these may be listed a general trend towards cutting down the working week, the introduction of child-care allowance systems,[23] the widening of the scope of pension schemes through the lowering of the retirement age, and the extension of general education, with an increasing share of the younger generation attending high schools and universities.

An analysis of changes in the structure of employment shows that in all countries employment in the material sphere has declined, while it has increased sharply in the non-material sphere. Trends may continue in the same direction. However, the global data on employment in the material sphere mask the structural changes which have taken place within the material sphere. As is shown in the section on agriculture, the share of the total active population employed in agriculture has been declining at annual rates exceeding 2.5 per cent in most countries, and this has been the main influence on the rather flat trends in employment in the material sphere. If employment in non-agricultural activities is taken by itself, the rates of growth are considerably higher, and in some countries (e.g. Romania) exceed those of the non-material sphere. Going one step further, however, there are some contrasts within the non-agricultural sector. Rates of growth of employment will be below-average in industry, and above-average in other activities (trade, transport, construction). The slowdown in industrial employment was very pronounced in the final years of the 1971-1975 period in most of the east European countries. Data on increases in numbers of employees in the socialist sector of industry are shown in the text table below.

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[21] In the German Democratic Republic, for instance, trends in female participation rates were: 44 per cent (1950), 62.0 per cent (1960), 74.9 per cent (1970) and 78.7 per cent (1975). See E. Sachse and E. Stiller, "Planning of social labour resources" in *Wirtschaftswissenschaft*, No. 2, 1976, p. 247 (in German).

[22] *Ekonomicheskaya Gazeta*, No. 40, October 1973.

[23] In Czechoslovakia, the number of women on maternity leave rose from 145,000 in 1970 to 277,000 in 1973 and 345,000 in 1975. See *Czechoslovak Economic Digest*, *op. cit.*, p. 16.

Employment in the socialist sector of industry

(*In thousands*)

	Total employment	*Increase in employment in relation to previous year*	
	1975	*1974*	*1975*
Bulgaria	1 297	34	20
Czechoslovakia	2 853	28	31
German Democratic Republic	3 262	12	15
Hungary	1 744	16	−11
Poland	4 668	110	68
Romania	2 800	176	141
Soviet Union	35 054	558	621

Sources: As for table 1.1.

These trends to structural shift will most likely continue in the future.

There are only a few data on changes in employment in the material sphere for 1976-1980. It looks as if the entire increase in employment in Hungary and Bulgaria will be concentrated in the non-material sphere. The Prime Minister of Czechoslovakia has emphasized that the planned increase in NMP should be achieved "through the work of the existing pool of manpower". The emphasis in employment policies, therefore, is on increasing the rational use of available manpower, and on the improvement of manpower management. A major objective is to eliminate or minimize labour shortages which have appeared in some sectors and regions.

In Bulgaria, policy measures have been designed with a view to discouraging any further outflow of farm labour. In Czechoslovakia, re-employment of labour within the material sphere is largely based on the transfer of labour from agriculture to non-agricultural activities, in particular to industry and construction.[24] In Hungary, a tendency to centralize manpower management has been very accentuated. The ban on additional employment in administrative activities remains in force.[25] Even in Poland labour shortages are very pronounced in some sectors, regions and particularly for some jobs. At the end of 1970, some 79,300 people were looking for jobs, and 40,000 vacancies were available. In September 1976, about 120,000 jobs were vacant and only 19,000 people were registered as seeking jobs. Vacancies for women —scarce until 1973—were twice the number of women looking for work. Employment in 1976 increased by only 1 per cent (slightly less than 100,000), whereas the plan envisaged an increase of about 220,000. In Romania, labour shortages have been felt in industry, construction and services, and in November, 1976 the National Assembly passed bills on the recruitment and deployment of manpower, and on the employment of able-bodied persons in useful work.

In the Soviet Union, regional imbalances in the allocation of manpower have been reported in the press, particularly with respect to areas located east of the Urals. Special measures stimulating the transfer of labour to this area have been introduced. The development programme for 1976-1980 has provided for the allocation of labour-intensive investment projects in areas with relatively large labour reserves, particularly in the central Asian republics, Kazakhstan and Azerbaidzhan. In the European part of the Soviet Union (the central and western regions of the RSFSR, the Ukrainian and Byelorussian and Baltic SSRs) investment is mainly oriented towards technical reconstruction of existing enterprises, and will not require additional labour.[26] The introduction on a massive scale of mechanization and automation, particularly in subsidiary activities, has been another element in policies for rational utilization of labour. During the period 1965-1975, the increase in employment based on mechanized labour in industry and construction outpaced considerably that in jobs based on manual work. (See text table below.)

Growth of employment in the Soviet Union

(*Indices, 1965 = 100*)

		of which in jobs with	
	Total	*mechanized work*	*manual work*
Industry	121	135	104
Construction	133	176	111

Source: M. Timokhin, "Problems of accelerating complex mechanization", in *Ekonomicheskaya Gazeta*, No. 7, 1977.

In the long run, demographic measures to stimulate natality, and the reforms in the educational system which were initiated in the period 1971-1975, can be expected to improve supplies of additional labour, and also to increase levels of skill.

In *Albania*, employment policies have been designed differently, in response to differences in the basic characteristics of the situation. First of all, Albania is a country with a relatively high rate of natural increase. The rate has exceeded 2.5 per cent in the past, and in 1975 it was

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[24] Statistics from Czechoslovakia indicate that 300,000 vacancies in industry, building and transport remain unfilled because there is no available labour. See *Rudé Právo*, 30 October 1975.

[25] It has been reported that manpower reserves have become totally exhausted in Budapest and northern Hungary. The demand for new workers forecast for 1976-1980 in construction (26,000), trade (50,000), transport (15,000), health, education and other services in the non-material sphere (about 84,000) will be met to a great extent by an outflow of labour from agriculture (a reduction of 130,000 in the agricultural labour force is envisaged by 1980).

[26] *Ekonomicheskaya Gazeta*, No. 2, 1976.

2.26 per cent. The annual rate of increase of the active population during the period 1971-1975 was almost 4 per cent. It seems that the new five-year plan envisages an acceleration of this rate (see text table below).

Albania: Changes in labour supply and labour productivity

(Average annual percentage change)

	1971-1975		*Plan 1976-1980*	
	Labour supply	*Labour productivity*	*Labour supply*	*Labour productivity*
Total economy	3.9	2.7	4.5-5.0*	1.9-2.0*
Agriculture	3.3	2.4	5.4	1.3-1.7*
Industry	4.6	3.9	4.1	2.8-3.2
Construction	3.0*	5.0*	2.7*	2.3-2.7*

Source: Report on the five-year plan for 1976-1980.

The pattern of growth in Albania retains basically the characteristics of extensive growth. Rates of growth of the labour force, global and sectoral, have exceeded corresponding increases in labour productivity (increases in NMP for the economy as a whole, and of gross output for major sectors). According to the plan the pattern will not change significantly during the period 1976-1980. Indeed, the development strategy for that period is based on an even more pronounced degree of labour intensity than in the previous period.

As far as *fixed assets* are concerned, growth in the past decade has been rather closely associated with the growth of national output throughout the region (chart 1.1). Average annual rates of growth of fixed assets for the whole economy were higher in the period 1971-1975 than in the previous quinquennium in all countries except Bulgaria (table 1.7). Nevertheless, the 7.7 per cent rate of growth of fixed assets recorded for Bulgaria is the second highest in the region. Data for fixed assets in the material sphere show a relatively faster rate of increase than the totals for the different countries. As has been shown in table 1.5, the share of dwelling stock (in value terms) in total fixed assets has tended to decline. Investment policies giving priority to the active component of capital goods (machinery and equipment) and oriented towards modernizing existing capacities have caused a rise in the share of the value of machinery and equipment in total fixed assets during the decade under review. The text table below shows these trends in the five countries for which data are available.

Machinery and equipment as percentage of the value of fixed assets in the material sphere

	1965	*1970*	*1975*
Bulgaria	38.8	41.8	44.0
Czechoslovakia	35.0	36.0	39.0
German Democratic Republic	48.4[a]	50.5	52.1
Hungary	32.2	34.7	37.3
Poland	35.7	38.7	43.5

Sources: As for table 1.1.

[a] 1967.

Trends in capital intensity (ratio of the value of fixed assets to employment—*fondovooruzhenost' truda*) have been closely related to those in labour productivity throughout the period 1965-1975 (chart 1.2). This implies that capital intensity has played a predominant role among factors contributing to increases in labour productivity. Indicators of capital intensity for the material sphere show steeper upward trends than corresponding indicators for the whole economy in all countries.

Trends in capital intensity and labour productivity have been reflected in changes in capital-output ratios (COR—*fondoëmkost'*). Increases in labour productivity have outstripped those in capital intensity in Czechoslovakia, the German Democratic Republic and Poland throughout the decade, in Hungary during the period 1966-1970, and in Romania during that of 1971-1975, so that the respective capital-output ratios have declined. This implies an upward trend in capital productivity (*fondootdatcha*) for the whole economy and even more for the material sphere in these countries.[27] This has not been the case in Bulgaria and in the Soviet Union, where pronounced upward tendencies in CORs have pre-dominated. Table 1.7 shows CORs based on five-year averages.

References to this issue in the plans for 1976-1980 are for most countries formulated mainly in a descriptive, qualitative way. In Bulgaria, during the discussion on the five-year plan for 1976-1980, the objective of reversing trends in capital-output ratios was strongly emphasized. Fixed assets in the material sphere are planned to increase at an annual rate of 5.1 per cent, and as employment in the material sphere is not planned to increase, capital intensity in the material sphere will have to rise at the same rate. As the planned rate of increase of labour productivity (7.7 per cent) exceeds that of capital intensity, capital-output ratios in the material sphere should decline (—2.1 per cent annually), possibly reaching a coefficient of about 2 units, the same as in the period 1966-1970. Policy on CORs are clearly related to policies on investment. There are two notable features of Bulgarian investment policies: an unusually high planned share (slightly over 100 per cent) for fixed assets put into operation in relation to total investment expenditures, and a high share of investment allocated to modernization and reconstruction (about 70 per cent of total expenditures).[28] This should increase the stock of fixed assets in the material sphere from 33 billion leva by the end of 1975 to 42-43 billion leva by the end of 1980, of which 48.5 per cent will be new assets.

Development strategy in the Soviet Union has been oriented towards large-scale investment in agriculture and energy and raw material-producing branches. It has been reported that capital intensity in the national economy as a whole is planned to increase by 36 per cent, in industry by 34 per cent, and in agriculture (state

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[27] Account must be taken of the fact that in the national accounts methodology of the centrally planned economies the non-material sphere is not considered to contribute to NMP.

[28] S. Stoilov, K. Kiryakov, I. Pashaliev, "Dynamic and efficient economic growth", in *Ikonomicheska Mis'' l*, No. 6, 1976, p. 12 (in Bulgarian).

TABLE 1.7

Fixed assets, capital-labour and capital-output ratios

(Average annual percentage change; for capital-output ratio coefficients; unweighted averages)

Country and period	*Fixed assets*		*Capital-labour ratio*		*Capital-output ratio*	
	Total economy	*Material sphere*	*Total economy*	*Material sphere*	*Total economy*	*Material sphere*
Bulgaria						
1966-1970	8.8	10.9	7.7	10.3	3.21	2.00
1971-1975	7.7	8.8	6.9	8.5	3.37	2.23
Plan 1976-1980	5.1-5.4					
Czechoslovakia						
1966-1970	3.8	4.4	2.2	3.1	5.55	3.06
1971-1975	5.4	5.8	4.3	4.8	5.28	2.98
German Democratic Republic						
1966-1970	3.5	4.8	3.3	4.8	4.43	2.56
1971-1975	4.3	5.8	3.8	5.7	4.16	2.57
Hungary						
1966-1970	4.6	5.6	3.2	4.0	4.78	2.76
1971-1975	6.3	7.5	5.9	7.4	4.65	2.84
Poland						
1966-1970	4.5	5.9	2.2	4.0	5.14	2.82
1971-1975	5.6	8.0	3.3	5.8	4.48	2.67
Romania						
1966-1970	8.6	. .	8.1	. .	3.55	. .
1971-1975	9.6	. .	8.9	. .	3.34	. .
Soviet Union						
1966-1970	7.4*	8.1	5.5	6.7	3.00	1.83
1971-1975	7.9	8.7	6.0	7.2	3.21	2.03

Sources: As for table 1.1.

and collective farms) by 60 per cent during the period 1976-1980. This implies an increase of about 48 per cent in the total stock of assets in the material sphere (or an average annual increase of 7 per cent). Such a pattern of growth of fixed assets, NMP and employment, will involve a rise in capital-output ratios in the material sphere (by slightly more than 2 per cent yearly). Accordingly, the capital-output ratio coefficient might increase from an average of 2 units for 1971-1975 to about 2.2 units for 1976-1980.[29] The pattern of investment expenditure discussed earlier is the main factor involved in this tendency.

(v) Price trends and policies

The implementation of the development objectives set out in the five-year plans for 1976-1980 involves modification and adjustment in the institutional pattern, and in the system of management and planning. These changes started in the final years of the last quinquennium, and some of them are to be carried out in the initial years of the current five-year period. The comprehensive reorganization of management in industry and agriculture is certainly one of the most important of these changes. The objective in this case is to concentrate productive capacities in order to organize large-scale technologically and economically optimal productive units. These reforms require new forms of co-ordination between productive units, with the establishment of *production associations*. In some countries, production units have been integrated with scientific and research institutes and centres to form scientific-production associations. Some plans refer to these changes and call for the wholesale reorganization and building up of an appropriate economic mechanism. In that regard, the Bulgarian plan is the most explicit. In addition, the plenary session of the Central Committee of the Bulgarian Communist Party, held in August 1976, decided to accelerate the process of institutional changes. In most countries, new forms have been introduced and extended gradually. Modifications in the system of economic regulators and the strengthening of the role of central policy measures—for instance, in the field of investment programmes, employment policy, prices and incomes—have recently added new elements to the economic mechanism in Hungary.

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[29] F. Kotov arrives at similar conclusions in "The dynamic character of the Soviet economy", in *Ekonomicheskaya Gazeta*, No. 46, 1976, p. 12.

The emphasis on increased efficiency, on accelerated application of new technologies, and on rapid changes in product mix, oriented towards up-to-date design of goods and towards higher quality, has intensified the tendency toward *price reforms*. Reference to the need for new producer prices has been made very frequently during discussions on the five-year plans. The economic, accounting and incentive roles of prices have been particularly stressed. Preparatory work on the revision of producer prices did, indeed, start in all the countries of the region several years ago.

The principle of *price stability* has dominated price policy in the centrally planned economies. This means that prices set by the government should be changed infrequently, and only on the basis of changed conditions in production (socially necessary production costs). In the past, revision of prices was predominantly of a downward character in the field of industrial producer prices. During the decade under review, upward price revisions have been more frequent, particularly in the field of agricultural delivery prices. Consumer prices have been more stable than producer prices. Trends and policies in relation to the former are treated in the section on incomes and consumption.

Statistical data on price changes are published in most of the countries of the region, but global price indices for producer prices, industrial and agricultural, are available only for Czechoslovakia from 1967, and for Hungary from 1968. In addition, a series on industrial prices is regularly published in the Soviet Union. To supplement these data, therefore, the method of *implicit price deflators* (IPD) has been applied in order to demonstrate global trends in price levels in the total economy, and for industry and agriculture. The available data at current and constant prices for gross and net material product allow for a calculation of the IPDs on both bases for five countries of the region (table 1.8).

The changes in prices of industrial products that have occurred and their impact on IPDs during the 1965-1975 period do not lend themselves to generalization. Stability of industrial producer prices in terms of IPDs based on gross output data (hereafter gross IPDs) during the period 1966-1970 was maintained in Hungary, Bulgaria and Poland, in the last mentioned country with a slight downward tendency. Price increases were recorded in Czechoslovakia. In the Soviet Union the increase in the gross IPD was the result of the reform in industrial prices of 1966-1967. Before that, from 1955 to 1966, prices had remained virtually unchanged, and they have not increased since 1967. The trends in the IPDs calculated on the basis of net output (hereafter net IPDs) largely followed the same pattern, except for Hungary and the Soviet Union. Price changes affecting material inputs of a non-industrial origin might be a factor in the large spread between gross and net IPDs for Hungary, but not in the case of the Soviet Union. Prices in light industry and food processing remained unchanged in that country, the rise in prices affecting only branches of heavy industries. The trends in the period 1971-1975 show more stability for Czechoslovakia, Bulgaria and the Soviet Union, with downward trends in the two last mentioned countries. In Hungary and Poland, the gross IPDs have shown an upward tendency, with an average annual increase of 3.5 and 2.5 per cent respectively.

The available *indices on wholesale industrial prices* confirm, to a great extent, the trends estimated on the basis of IPDs (see text table below).

Producer price indices in industry

(Beginning year of period = 100)

Czechoslovakia		
1967-1970		106.6
1970-1975		100.0
Hungary		
1968-1970		104.1
1970-1975		121.8
1968-1975		126.9
Soviet Union		
	Turnover tax	
	excluded	*included*
1965-1967	110	106.3
1965-1970	110	107.1
1970-1975	97.4	97.1
1965-1975	107	103.9

Source: National statistics.

In the Soviet Union, as mentioned before, the price reform of 1967 was concerned mainly with prices for products in heavy industrial branches. The index of industrial wholesale prices (*optovye ceny promyshlennosti*) rose by 15 per cent in the second half of 1967. The corresponding index for light industry and food processing remained unchanged at the 1958 level, although new prices were introduced in most sub-branches of these industries. The revision of prices in light industry came into effect on 1 January 1973. The index (on a 1970 basis) rose by approximately 2.5 percentage points on the basis of prices including turnover tax, and by about 5 per cent on that of prices net of turnover tax.[30]

Trends in IPDs in agriculture are analysed in the section on agriculture. The general characteristic of these trends is an increase in IPDs for all countries. Stable IPDs were recorded only in Czechoslovakia, and there only for the 1971-1975 period.

Trends in gross IPDs for the whole economy are influenced to a great extent by trends in industrial producer prices, owing to the dominant share of industry in the production structure of all countries. The greatest variance between these two series has been recorded in Hungary, where the share of industry was between 42-43 per cent in 1965-1970, and the share of agriculture about

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[30] See *Narodnoe Khozyaistvo SSSR v 1975 godu*, pp. 233-234.

TABLE 1.8

Implicit price deflators of gross product and net material product

(*Indices*)[a]

Country and period	*Total economy*		*Industry*		*Agriculture*	
	Gross product	*Net material product*	*Gross product*	*Net material product*	*Gross product*	*Net material product*
Bulgaria						
1965-1970	104.2	104.3	97.8	96.1	106.9	112.3
1970-1975	97.0	93.5	96.4	90.7	114.6	123.2
1965-1975	101.1	97.5	94.2	87.1	122.5	138.4
Czechoslovakia						
1965-1970	127.7	128.8	127.4	125.3	109.3	112.3
1970-1975	101.9	99.5	103.3	102.6	102.7	99.6
1965-1975	130.1	128.1	131.6	128.6	112.2	111.9
Hungary						
1965-1970	113.5	113.2	100.7	80.1	129.4	137.5
1970-1975	114.6	107.1	119.2	112.1	112.6	114.2
1965-1975	130.1	121.2	120.0	89.8	145.7	157.0
Poland						
1965-1970	100.3*	105.5	98.6	103.5	102.0	109.9
1970-1975	112.6	113.7	113.2	117.6	132.5	158.6
1965-1975	112.9*	119.9	116.0	121.8	135.2	174.2
Soviet Union						
1965-1970	107.1	103.3	108.7	92.5	118.7	130.6
1970-1975	98.5	94.8	95.8	88.4	114.6	115.2
1965-1975	105.8	98.2	103.7	82.3	136.5	149.7

Sources: As for table 1.1.

[a] The beginning year of a given period = 100.

20 per cent. The variance grew smaller in 1971-1975 as the relative shares of industry and agriculture changed substantially. The association between gross and net IPDs is better for the total economy than for industry.

All countries have envisaged a revision of industrial producer prices for 1976-1980. In *Bulgaria* the general principles underlying the price revision have been published.[31] Here the reform envisages changes in the categories of prices. The multiple and diversified existing pattern of prices is to be replaced by three main types of prices: wholesale prices, retail prices and internal accounting (*v"treshnorazchetni*) prices. Maximum prices (*limitna tsena*) are to be introduced in order to stimulate the application of advanced technology in production. For imported goods, some kind of shadow price (*kalkulativna tsena*) is envisaged.

In *Czechoslovakia* work on the reconstruction of the wholesale price system started as early as 1973. The new system came into effect as of 1 January 1977. The principles and policy objectives of price setting are here related to cost considerations, and to the role of prices in planning technological progress and higher quality of products. Another objective has been to adjust prices to long-term trends on world markets. The new list contains over 2 million items. The over-all level of wholesale prices has been cut by 2.6 per cent. About 59 per cent of wholesale prices have been reduced (manufacturing industry mainly) and 41 per cent have been raised (fuels and energy and products with a high raw materials element). Some price cuts were considerable: prices of semi-conductor elements have been reduced by more than 80 per cent and of measuring instruments by 40 per cent. The restructuring does not affect retail prices, which remain unchanged. The differences are compensated for by adjustments in turnover tax.

Changes in industrial producer prices will also be introduced gradually in the *German Democratic Republic* during the 1976-1980 period. The emphasis is on stimulating the role of prices in promoting the application of scientific and technical progress and, in particular, on cutting down the consumption of energy and raw materials through the substitution of imported material inputs by domestic, and the recycling of secondary materials. The price reform is linked to changes in financial policy measures, and also to the formation of a price equalization fund.

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[31] D. Dimitrov and D. Stanoev, "Development and improvement of prices and price-setting during the seventh five-year plan", in *Planovo Stopanstvo*, No. 4, 1976, p. 18 *et passim* (in Bulgarian).

The new price policy concept in *Hungary*, elaborated in 1974, has been predominantly influenced by the objective of counteracting the adverse effects of world market inflation. Accordingly, prices of energy sources, ferrous metallurgy products and aluminium, chemical products, petro-chemicals, clothing and industrial engineering products were raised in 1975. The latest round of price revisions, planned for 1976, involved the power engineering, building materials, timber, paper and forestry sectors. Freight transport tariffs were also revised.[32] The effects of these price changes on the producer price level were as follows (see text table):

Hungary: indices of producer prices

(*Previous year = 100*)

	1975	*Plan 1976*
Industrial producer prices	111.0	107.5
Agricultural purchasing prices . . .	101.0	106.8
Construction industry prices . . .	104.0	105.0
Producer prices in other sectors . .	101.8	105.8
Producer prices — total	106.7	106.4

Source: B. Csikós-Nagy, "Price policy at the beginning of the present five-year plan", in *Marketing in Hungary*, No. 1, 1977, p. 10.

It has been reported that the price changes of 1975 were 85 per cent attributable to central government price measures and 15 per cent to market factors. A particular feature of the Hungarian price system is the fact that the general level of producer prices exceeds that of consumer prices. Producer prices contain a large element of taxes paid by enterprises, whereas consumer prices are linked to subsidies, which exceed the volume of turnover tax.[33]

Procurement prices for major farm products were raised in *Poland* as from 14 July 1976 (grain 40 per cent, potatoes 30 per cent, sugar-beet 12 per cent, pigs for slaughter 19.2 per cent, cattle 20.7 per cent, poultry 20 per cent, milk 21.2 per cent). At the same time, prices of material inputs and services delivered to agriculture were raised: for concentrated fodder by 45 per cent, for phosphate fertilizers by 25 per cent, for nitrogen and potassium fertilizers by 20 per cent, for pesticides by 30 per cent, for agricultural machines and tractors by 30 per cent, for spare parts for tractors by 40 per cent. Prices of building materials were also increased: by 60 per cent for cement, by 40 per cent for lime and metallurgical products used in construction, and by 45 per cent for timber and timber materials.

Romania has also carried out a price reform, which was finalized at the end of 1976. The new prices are envisaged for introduction early in 1977, according to a statement by the General Secretary of the Romanian Communist Party in a speech delivered in November 1976.

The five-year plan for 1976-1980 in the *Soviet Union* calls for a further improvement in the system of wholesale prices and tariffs, and underlines the need to raise the incentive role of prices in the economical use of factor inputs. An enhanced role for prices is also mentioned in relation to "the most rational use of natural resources".[34] The State Committee for Prices of the USSR Council of Ministers has elaborated a programme for the "improvement of the mechanism of industrial wholesale prices".[35] The first step in the implementation of this programme was represented by price changes effective as of 1 January 1975. Wholesale prices for several kinds of machinery (numerically controlled machines, metal-cutting machines), some products in non-ferrous metallurgy, chemicals, and in the pulp and paper industries were reduced, and prices of coking coal, coke, iron ore and ferrous scrap were raised somewhat. As from 1 January 1976, a new price list for ferrous metallurgy was to be introduced.[36] Close attention has been paid to the setting of prices for new types of products, and a new methodology for this was prepared by the State Committee for Prices in April 1974.[37] Since that time, ministries and other government organizations have elaborated more than 60 specialized methodologies in this field. Mark-ups are designed to stimulate production of new lines of higher quality, and markdowns to destimulate the production of obsolete and low-quality lines. The differentiated approach to wholesale price setting will be further developed. For instance, prices for coal are to be set at a level which stimulates exploitation in the mines with the best prospects (Kansk-Achinsk, Ekibastuz). The relationships between prices for coal, gas, oil and also between those for oil and oil products are to be changed in order to stimulate the rational use of these products. The revision of prices for electric energy and thermal power has been envisaged.[38]

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[32] B. Csikós-Nagy, "Price policy at the beginning of the present five-year plan", in *Marketing in Hungary*, No. 3, 1976, pp. 10-11.

[33] O. Gadó and T. Nagy, "Problems of structural accommodation in the Hungarian planned economy", in *Marketing in Hungary*, No. 1, 1977, p. 8.

[34] Editorial, "Prices and efficiency of production", in *Planovoe Khozyaistvo*, No. 10, 1976, p. 5.

[35] N. Glushkov, "The economy and prices", in *Pravda*, 8 February 1977.

[36] N. Orlov, "Wholesale prices of industrial products in the ninth five-year plan", in *Planovoe Khozyaistvo*, No. 9, 1975, pp. 50-51.

[37] *Ekonomicheskaya Gazeta*, No. 30, 1974.

[38] N. Glushkov, "The improvement of wholesale prices", in *Ekonomicheskaya Gazeta*, No. 26, 1976.

2. TRENDS AND POLICIES IN AGRICULTURE

(i) Global development strategies and major policy objectives

The objectives, targets and measures included in the five-year plans for the period 1976-1980 indicate primarily the *continuation of a global development strategy* in the field of agricultural production, a strategy which had been formulated in the mid-1960s in the Soviet Union and all the east European countries. This policy choice for the new five-year plan period has been influenced, above all, by the fact that the basic factors of production determining agriculture development have not changed their roles during the past decade. The need for a development strategy orientated to intensive growth factors and based on the massive application and dissemination of new technologies, most frequently implemented through capital investment, has been confirmed by past trends. Opportunities to add to the stock of cultivated land are scarce, and very frequently require heavy capital investment. Labour resources available for agriculture are declining in absolute numbers and deteriorating in age and sex structure. The main dynamic and expansive factor is capital invested in new production capacities, material inputs, techniques and the training of skilled labour.

The key factor in agricultural development, the application of additional capital resources, implies the introduction of industrial technologies and leads to a policy of *industrialization* of agricultural activities as the central part of the development strategy. Simultaneously, it opens up a process of intensification of technical and economic links between agriculture and input-supplying activities, a process which leads to the integration of the former and latter with the food-processing industry and related services (transport, trade, vocational education, research) into an agro-industrial complex. Increased capital requirements as a prerequisite for further expansion do not then concern agriculture alone. The sectors providing the necessary inputs in raw materials, equipment, other capital goods and services, present the same requirements, and to an even greater extent. Thus, possibilities for increasing investment flows to agriculture are constrained not only by the level of the aggregate volume of funds available, but also by allocational factors. Inter-sectoral reallocation would certainly bring about a deceleration in over-all economic expansion. This fact has found full recognition in the investment policies of the east European countries, where the ratio of agricultural investment to total investment was between 11 and 15 per cent during the period 1971-1975, showing a declining tendency in comparison with the 1966-1970 ratios. The data in the plans for 1976-1980 suggest a trend in most cases towards further decline, but with the ratio remaining above 11 per cent, except in Czechoslovakia. Bulgaria and Poland, however, have envisaged a more intensive level of agricultural investment.

The most important exception to this investment strategy is provided by the Soviet Union. Here policy-makers have opted for a radically different alternative in agricultural investment policy; the level of the 1971-1975 investment ratio was virtually double those of the east European countries, and higher than it had been in 1966-1970. In addition, a further rise in the investment ratio has been planned for 1976-1980, bringing it, for the whole agro-industrial complex, up to 27.4 per cent of total investment, the highest ratio of agricultural investment ever recorded in the region. Such planned developments in agricultural production have certainly been one of the factors influencing the planned deceleration in over-all economic expansion in the Soviet Union.

In the Soviet Union and the east European countries the growth achieved in agricultural production has required increasing resource inputs and has become more expensive. Increasing capital-labour and capital-output ratios provide statistical evidence for these trends. The attention paid to the *efficiency* of factors of production and to the need for increased quality in agricultural produce are not an innovation in agricultural policies, but the emphasis on over-all efficiency has been intensified. Frequent reference has been made to the fact that extensive use of any factor of production cannot lead to improved efficiency. Optimization, rather than maximization of output, is the essence of the targets envisaged in the plans.

Account has been taken of *structural disproportions* and erratic fluctuations in production, particularly in crop production, as factors which do not allow for a full, optimum and efficient use of planned resource inputs. Structural adaptation between livestock and crop production and the emphasis on developing a fodder base have determined the development priorities in the new five-year plans in the east European countries. In the countries where a relatively high share to livestock characterized the 1971-1975 period (Czechoslovakia, the German Democratic Republic and, to some extent, Hungary) priority in the new plans has been given to crop production. These policies have been prompted also by balance-of-payments considerations. Self-sufficiency in grain production has taken a prominent place among policy objectives in Czechoslovakia, and also in Albania (bread grains). Self-sufficiency in sugar production has been explicitly incorporated into the policy objectives of Hungary. The minimization of annual fluctuations and stabilization of agricultural production figure prominently as aims in the Bulgarian and Polish plans, reflecting the objective of bringing relatively retarded rates of growth into line with domestic consumption and export requirements.

It seems that the realization of the aim of increased efficiency as a policy objective in the *Soviet Union* has been envisaged in a different way. This reflects differences in natural conditions. Soviet agriculture is based on a large agricultural cultivated area exceeding 220 million hectares, which means that the Soviet Union has the largest area of arable land per capita in the region—0.9 ha. per capita compared with less than 0.5 ha. in the east European countries (table 2.2). But most of the arable land is located in zones with inclement climate, characterized by cold weather, lack of moisture and a short vegetation period. Areas of poor soil fertility, including acid and saline lands, account for a large part of the country's land stock. The efficient exploitation of this area, based on modern industrial technologies, requires large amounts of capital resources. Advanced agricultural technologies developed in the Soviet Union, applied on a Soviet scale and with resources available in the Soviet Union, do not produce the same results as in east European countries where the same technology is applied but on a considerably smaller scale. For instance, grain yields in the east European countries increased from an annual average of 22.7 q/ha. during 1966-1970 to 28.9 q/ha. in the period 1971-1975. The corresponding yields in the Soviet Union were 13.7 and 14.7 q/ha. respectively, i.e. only slightly higher than one-half of the yields recorded in eastern Europe. These figures reflect not only differences in climatic and soil fertility conditions, but also the lowest input coefficients for the application of fertilizers and chemicals for crop production in the area, and a coefficient of power intensity which is among the lowest (in terms of tractor engine horse-power per unit of arable land) in the area. These illustrations indicate only some aspects of the complexity of the issue.

The extensive character of Soviet agriculture taken as a whole has been changing gradually during the last decade, with large-scale investments in the modernization of production capacities and technologies. Taking into account the general conditions under which Soviet agriculture operates, several options can be considered with a view to achieving higher efficiency in the use of resources. The option based on a reduction in the area of arable land with a view to creating a more optimal mix of production factors has not been adopted. Soviet long-term strategy has been based on full use of land resources, with vast programmes of land reclamation (the long-term programme of development of the Non-Black-Earth area covers a region of 52 million hectares of agricultural land, of which more than a half—32 million hectares—is arable land).[1] To approach the optimum combination of factors of production, huge additions of capital investment and deliveries of material resources are needed. The increasing share of agricultural investment envisaged for the 1976-1980 period is consistent with the choice of this strategic option, and underlines the fact that one of the highest priorities in over-all development strategy has been assigned to agricultural development.

(ii) Expansion of agricultural production

The rate of agricultural expansion in the east European countries and the Soviet Union during the period 1971-1975 provides a global indicator of efficiency in the implementation of the long-term strategies and policies included in the sections on agricultural development of the five-year and annual national plans. As is clear from the plan documents, projections for 1971-1975 were based on estimates of agricultural expansion resulting from material and human inputs under normal conditions, including climatic. Based on historical trends, it was assumed that the rate of agricultural expansion in terms of gross product should be around 40 to 50 per cent of the expansion rate for the whole economy, which for most countries of the region implies an annual rate of increase of 3 per cent. It looks as if this assumption has provided the basis for the planners' decisions concerning the targets for the new 1976-1980 plans as well.

The expectations of the planners were not fully confirmed in regard to climatic conditions. Their impact on the development of agricultural production has indeed been decisive, as material and human inputs have been applied largely in accordance with the planned amounts.[2] With the exception of Hungary and, to some extent, of Czechoslovakia, all the countries of the region recorded fluctuations in annual agricultural output which brought the aggregate rate of expansion of agriculture in terms of gross output for 1971-1975 down below the planned targets, and for Bulgaria and the Soviet Union below the rates achieved in 1966-1970 (table 2.1 and chart 2.1).

Inter-country differences in rates of agricultural growth 1971-1975 have been reduced as compared with the 1966-1970 profile. But this reduction cannot be treated as a factor contributing to a more balanced growth of agriculture in the area as a whole. In fact, growth rates of agricultural production compared with rates of over-all expansion lagged behind in the period 1971-1975, and the production structure of the region as a whole and of the individual countries deteriorated. The growing disproportion between agricultural production and the rest of the economy has had adverse effects not only on domestic production but also on foreign trade positions. Except in Czechoslovakia and Hungary, ratios of the growth rate of agricultural output to the growth rate of total gross product have fallen (see text table below):

Ratio (Percentage)	*1966-1970*	*1971-1975*	*Plan 1976-1980*
Around 30	German Democratic Republic	Bulgaria, German Democratic Republic, Poland	–
Around 40	Poland	Romania, Soviet Union	Bulgaria, Poland
Around 50	Bulgaria, Czechoslovakia, Hungary, Romania, Soviet Union	Czechoslovakia, Hungary	Czechoslovakia, German Democratic Republic, Hungary, Poland, Soviet Union
Around 60	–	–	Romania

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[1] *Ekonomicheskaya Gazeta*, No. 15, 1974, p. 2.

[2] See foot-note 43.

TABLE 2.1

Growth of gross agricultural output

Country and period	*Average annual percentage change* [a]					*Indices, 1966 = 100*			*Percentage share*	
	Total									
	Planned	*Actual*	*Crop*	*Animal*		*Total*	*Crop*	*Animal*	*Crop*	*Animal*
Bulgaria										
1966-1970		4.8	4.7	4.9					65.5	34.5
1971-1975	3.2-3.7	2.2	1.4	3.7		111.5	107.0	120.2	58.5	41.5
Plan 1976-1980 . .	3.7		. .	. .		133.8	. .	. .	. .	. .
Czechoslovakia										
1966-1970		3.5	3.4	3.7					47.5	52.5
1971-1975	2.7	2.9	1.9	3.8		115.5	109.9	120.6	45.2	54.8
Plan 1976-1980 . .	2.7-2.8		3.0-3.2	2.5		131.8-132.9	127.5-128.6	136.3	. .	. .
German Democratic Republic										
1966-1970		1.9	0.4	3.1					45.4	54.6
1971-1975	2.4	2.1	0.7	3.3		111.0	103.3	117.3	42.3	57.7
Plan 1976-1980 . .	3.0* [b]		3.7	2.6		128.7	124.0	133.5	. .	. .
Hungary										
1966-1970		2.8	1.9	3.9					57.0	43.0
1971-1975	2.8-3.0	3.4	3.0	3.9		118.4	116.3	121.3	55.9	44.1
Plan 1976-1980 . .	3.2-3.4		3.6-3.8	3.0		137-140	138-140	141.0	. .	. .
Poland									c	c
1966-1970		2.9	3.4	2.3					58.6	41.4
1971-1975	3.5-3.9	3.1	2.3	4.1		116.8	112.2	122.5	54.4	45.6
Plan 1976-1980 . .	3.0-3.5		3.7-4.2	2.5-3.0		135.4-138.6	134.5-137.8	138.5-142.0	. .	. .
Romania										
1966-1970		4.2	4.0	4.8					61.8	38.2
1971-1975	6.3-8.3	4.6	3.8	6.0		125.6	120.7	133.6	59.5	40.5
Plan 1976-1980 . .	5.1-7.6		. .	. .		160.7-180.8	. .	. .	. .	. .
Soviet Union										
1966-1970		3.9	4.2	3.7					50.9	49.1
1971-1975	3.7-4.0	2.5	1.6	3.3		112.9	108.3	117.6	48.8	51.2
Plan 1976-1980 . .	2.7-3.2		. .	. .		129.0-132.3	. .	. .	. .	. .
Byelorussian SSR										
1966-1970		5.7	5.3	6.0					50.9	49.1
1971-1975	4.6	2.6	1.3	3.9		113.9	106.9	121.1	47.8	52.2
Plan 1976-1980 . .	2.3		. .	. .		127.5	. .	. .	. .	. .
Ukrainian SSR										
1966-1970		3.2	3.3	3.2					53.8	46.2
1971-1975	3.6	2.9	2.2	3.8		115.5	111.4	120.2	51.9	48.1
Plan 1976-1980 . .	2.5		. .	. .		130.5	. .	. .	. .	. .
Albania [d]					*Year*					
					1965	100.0	100.0	100.0	64.8	35.2
1966-1970	6.2-7.0	8.3	9.1	6.2	1970	149.0	154.6	135.1	71.2	28.8
1971-1975	8.5-9.2	5.9	5.4	6.2	1975	198.5	200.0	182.4	71.0	29.0
Plan 1976-1980 . .	6.7-7.1		7.7-8.1	6.4-6.8*	1980	276.9	292.0	250.8	71.7	28.3

Sources: National statistics and CMEA yearbooks, plans and plan-fulfilment reports.

[a] Average annual percentage changes calculated on the basis of previous five-year period total.

[b] Estimated on the basis of the planned increase in crop production $\left(\frac{1976\text{-}80}{1971\text{-}75} = 120\right)$ and that in animal output $\left(\frac{1980}{1975} = 109\right)$.

[c] At current prices.

[d] Base year 1970 for 1971-1975 and 1975 for 1976-1980.

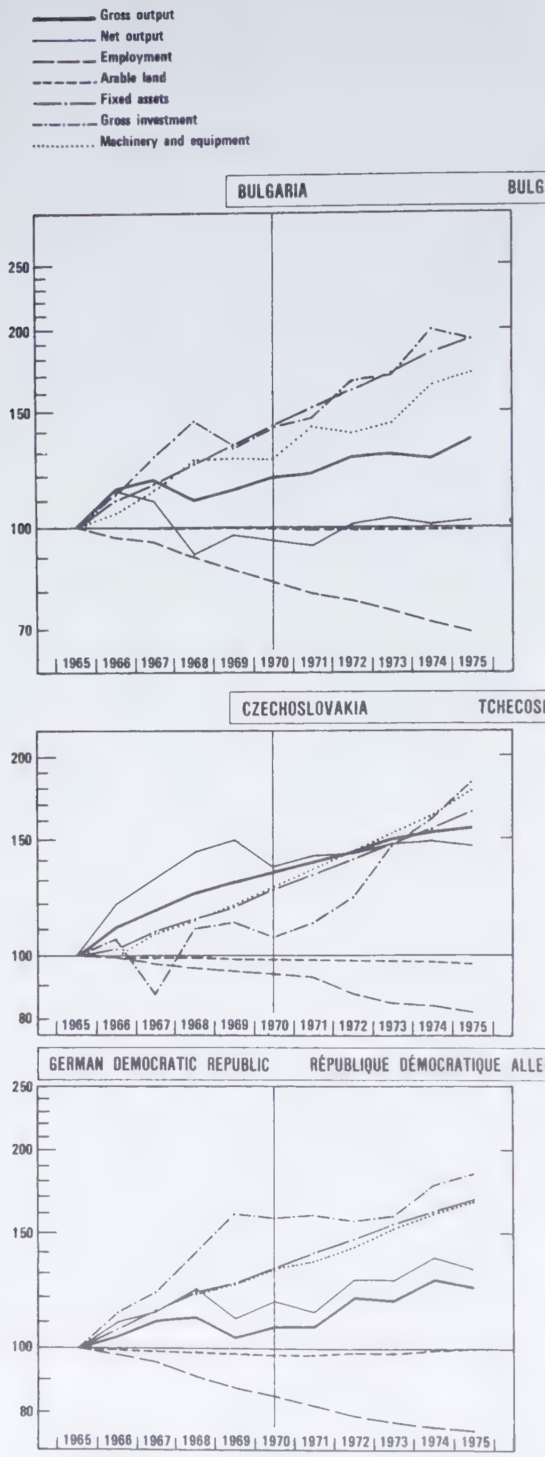


CHART 2.1

Agriculture: Output and factor inputs

(*Indices, 1965 = 100*)

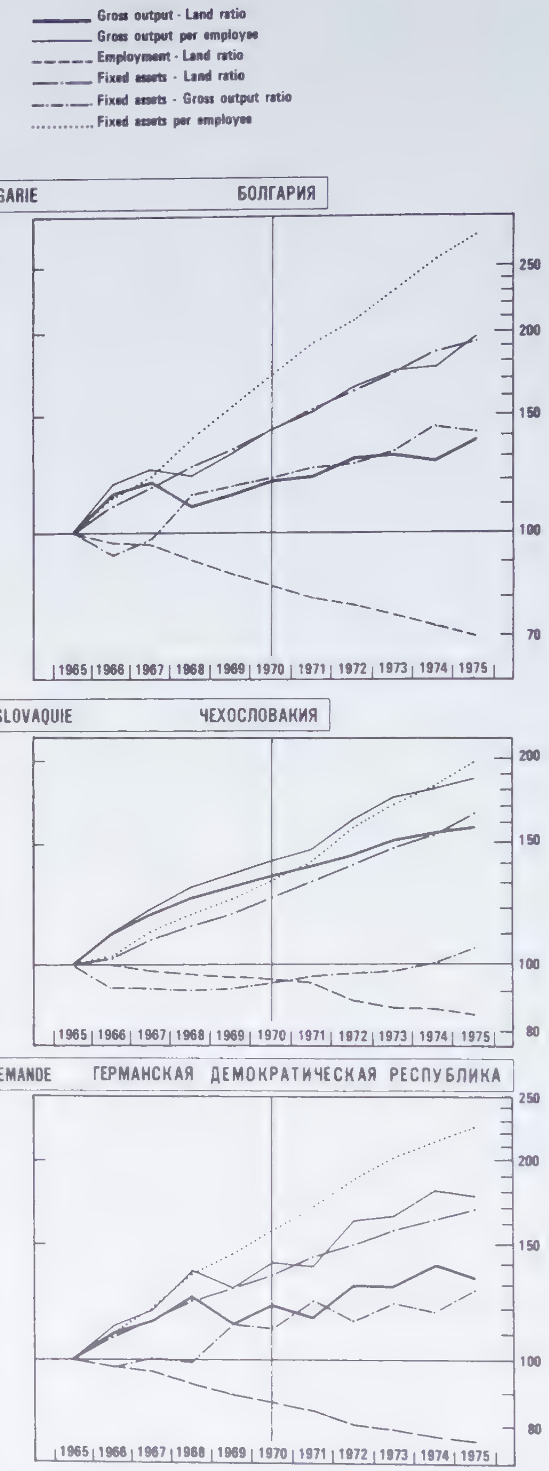
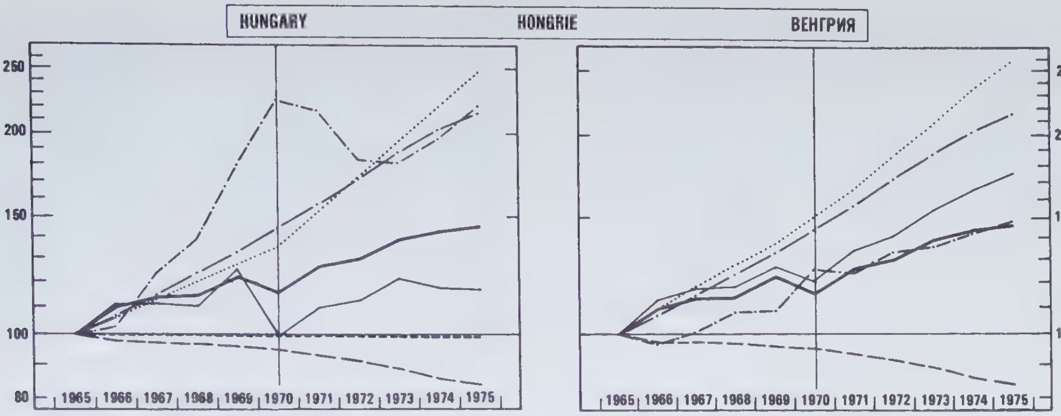
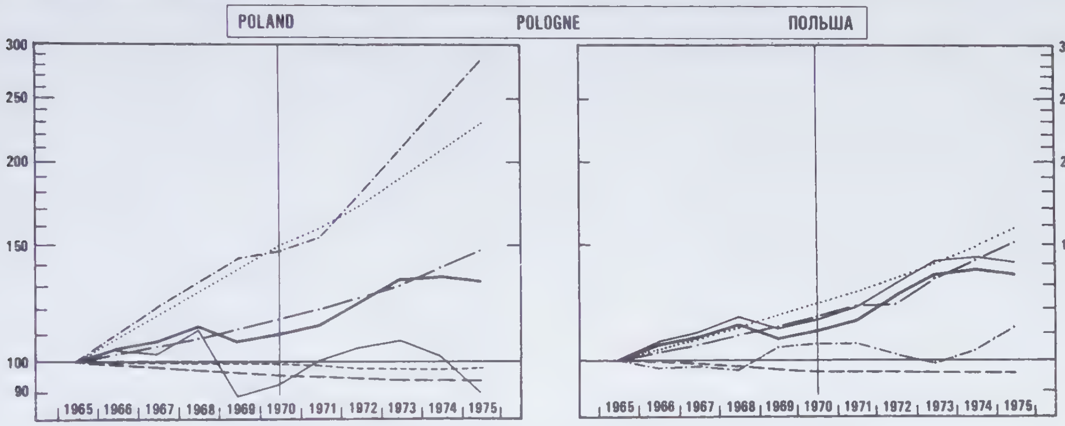


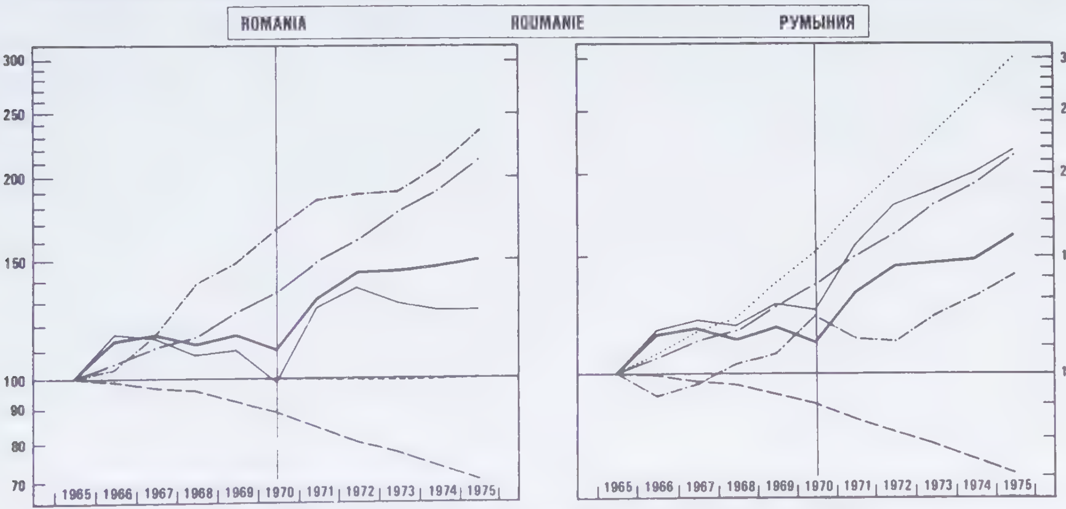
CHART 2.2

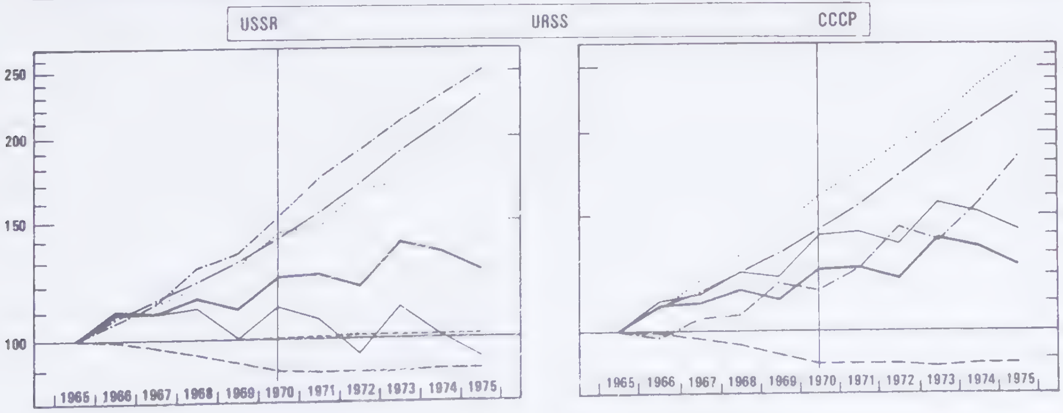
Agriculture: Efficiency indicators

(*Indices, 1965 = 100*)









Sources: As for table 2.1.

Sources: As for table 2.1.

One can distinguish two groups of countries in relation to this rate of growth. The German Democratic Republic, Bulgaria and the Soviet Union, with rates of 2.1, 2.2 and 2.5 respectively, are the countries where a moderate expansion rate has resulted in a relative lagging behind of agricultural expansion, and has increased the trade deficit in agricultural products in the German Democratic Republic and the Soviet Union and substantially decreased net exports in Bulgaria. Czechoslovakia, Poland and Hungary recorded rates of 2.9, 3.1 and 3.4 per cent respectively, rates which in Czechoslovakia and Hungary (ratio = about 50 per cent) reflected structural shifts in production in accordance with the strategy of balanced growth. A beneficial effect on foreign trade has also been recorded. Hungary's net export position in agricultural production has been substantially improved, and Czechoslovakia's trade deficit in grain has been diminished and self-sufficiency in animal products achieved. The growth rate in Poland has been high in absolute terms, but too low in relation to the over-all expansion rate (about 10 per cent, giving a ratio of about 30 per cent), with the same effect on the macro-economic structure (increased disproportions) and foreign trade in agricultural products (increased deficit in grain trade) as in the first group of countries. Romania has pursued a policy of maximizing over-all and agricultural expansion. The rate of agricultural expansion—4.6 per cent—is the highest in the region, but is below the planned target and has not been high enough (ratio of 40 per cent to over-all expansion rate) to provide a basis for more balanced growth in the Romanian economy. Strains on home markets, in spite of a decreasing net export position in grain and a rather modest net export position in meat, illustrate the effects of the tendency for Romanian agriculture to lag behind.

The targets for agricultural expansion in the 1976-1980 plans are largely clustered round a 3 per cent rate of increase, with slightly higher targets in Hungary (3.2-3.4 per cent) and Bulgaria (3.7 per cent). Romania is again the exception with a very high planned rate of growth of 5.1-7.6 per cent. With that exception, the targets indicate the continuation of a policy of agricultural development not aiming at maximizing the growth rate, but rather at maintaining growth rates which will keep agricultural expansion more in tune with over-all expansion, i.e. with a ratio to over-all growth rate of around 50 per cent. An acceleration in relation to past performance has been planned in Bulgaria, the German Democratic Republic and the Soviet Union, in relative terms to the greatest extent in the German Democratic Republic. Hungary and Czechoslovakia plan to continue their expansion in agriculture at the same pace as previously. The planned slowdown in Poland reflects the planned slowdown in over-all expansion, and could contribute to the correction of domestic and foreign imbalances. The planned shift in the ratio from 30 to 40 per cent in Poland and in Bulgaria also indicates trend towards improvement in the profile of planned growth rates, but leaves both countries at the bottom end of the ratio-pattern. Romania is the only country where a 60 per cent ratio has been envisaged for agriculture.

Statistical data available on agricultural development in *Albania* indicate a different development strategy of over-all economic expansion, structural shifts and agricultural growth. In this country, agriculture has remained a fundamental sector of the national economy, employing 64 per cent of the total active population. (This share has not changed since 1965, which corresponds to the aims of over-all employment policy. On the other hand, Albania has the highest rate of natural increase in Europe—2.3 per cent in 1975.) The ratio of agricultural to over-all growth is virtually 1:1. The growth rate of 5.9 achieved in the 1971-1975 period has not provided the country with adequate supplies in bread grains (maize included by the Albanian definition) and self-sufficiency in bread grains is the key policy objective in the new five-year plan. Lack of statistical data and other information do not allow for an assessment of the impact of such a structural profile on the development of domestic production structures and the foreign trade position of this country.

(iii) Factor inputs in agriculture

In all the countries of the region the growth of agricultural production has been almost entirely dependent on supplies of material and capital inputs and services originating to an increasing extent in activities outside the field of agriculture. Traditional inputs of agricultural origin, such as seeds, fodder, livestock breeds and also land and labour, have been modified substantially by a massive application of new technologies. All these changes have one common denominator—technical progress. But what they also have in common is that their application requires huge amounts of financial, human and material resources, leading to more intensive integration of agriculture into the national economic complex.

Inter-country differences exist here, but they are rather the result of the existing level of agricultural and over-all economic development than of the technologies applied. The latter accelerate the process of decreasing inter-country differences in agricultural efficiency in terms of yields in crop and animal production, in the use of fertilizers and agricultural machinery, etc. In fact, the need for huge spending in the field of technological advance in agriculture has led to the development of an international component in the process. Co-operation in the field of agricultural technology within the CMEA framework and contacts with the West involving transfe- of technology represent an additional factor in the equalr ization of conditions for using factor inputs. Finally, account must be taken of the high degree of institutional uniformity of agriculture in these countries from a managerial point of view: large-scale farming of a collective or nationalized (state) type is dominant to a very large extent in all countries, with Poland as the only exception.

The profile of development of factor inputs has been influenced by all these general trends. The impact of specific characteristics of a national character on agricultural development cannot be rejected, but the pattern of factor inputs is reducing its importance. The dominant tendency is towards increasing similarity, even uniformity, of national patterns. The shape of the curves and their interrelationships presented in charts 2.1 and 2.2 substantiate this general statement. Looked at in greater detail, trends have been as follows during the 1965-1975 decade: land inputs in terms of arable land have remained virtually constant, even declining slightly, except in the Soviet Union, where a very slight relative increase has been recorded. Albania has also experienced some increase in the acreage of cultivated land.

Manpower resources, in terms of active population employed, have been diminishing in all countries; higher decreases were recorded in the countries with higher shares of agricultural employment in total employment. The lowest decrease was recorded in Poland, probably because of the high share of private farming. Employment policy in Albania has stabilized agricultural employment at a very high 64 per cent share of total employment.

In all the countries of the area, fixed assets expanded at a high rate, a rate substantially outpacing that of output growth. In the case of Czechoslovakia, however, this trend appeared only in the second half of the decade, while in Poland it has been visible only in the last few years. Data on trends in gross investment indicate relatively wide annual fluctuations. In most countries, investment rose at rates higher than those for fixed assets, which may indicate in some cases a rather high share of non-completed investment projects.

As a result of such trends in factor inputs in all countries, labour intensity in relation to land has decreased. Capital intensity in relation to land has increased, but at a higher rate than global productivity of land (gross product related to arable land). Czechoslovakia and Bulgaria are the only countries where global productivity of land has changed *pari passu* with capital intensity in relation to land. Labour productivity has increased, but at a slower pace than capital intensity in relation to labour, with a consequent decreasing rate of return on fixed assets (increasing fixed assets-gross output ratio). Czechoslovakia has recorded the only exception in this regard, although the slight tendency for the capital-output ratio to increase since 1968 confirms the validity of general trends even in this case.

Statistical evidence on trends in material costs is not systematic, and not at a level which allows for inter-country comparison. The impact of differences in price structures, and in particular of changes in producer prices of industrial inputs, in rates of depreciation allowances on fixed assets and in delivery prices of agricultural products, is of great—and in some cases decisive—importance in defining the share of material costs in the value of agricultural production. Taking into account all these complications, however, trends in material costs can be illustrated indirectly by changes in the share of the value of net output in gross agricultural output. A decreasing share of net output indicates an increasing share of material costs and capital depreciation allowances. As a rule, the share of depreciation allowances has changed little so that any increase in the aggregate "residual" is probably largely accounted for by an increase in material costs.

In fact, shares of net output have tended to decrease in all countries over the period 1965-1975 (see text table).[3]

Agriculture: net material product as percentage of gross product

(A, at current prices; B, at constant prices; gross agricultural production = 100)

Country	*1965*	*1970*	*1975*
Bulgaria			
A	64.9	54.9	55.2
B[a]	61.0	49.3	53.7
Czechoslovakia			
A	34.0	35.6	31.9
B	34.8	35.4	32.7
German Democratic Republic			
B	57.0	49.2	37.5
Hungary			
A	47.0	44.3	40.8
B	49.5	43.8	39.9
Poland			
A	39.2	35.5	34.6
B	..	37.7	30.6
Romania			
B	54.1	46.8	43.6
Soviet Union			
A	61.5	60.8	49.9[b]
B	61.5	55.8	46.6

Sources: As for table 2.1.

[a] 1965 and 1970 at 1962 prices; 1975 at 1971 prices.

[b] 1973: 56.1 per cent.

Trends in net product show a considerable discrepancy vis-a-vis trends in gross product, (chart 2.2) largely because of the impact of price policies relating to purchase prices of agricultural products, delivery prices of inputs of non-agricultural origin, and policies on incomes in the agricultural sector. (For more detailed analysis, see section on agricultural purchase prices.) The discrepancy has tended to increase, with net product remaining very close to the 1965 level in Bulgaria, Poland and the Soviet Union. In other countries similar trends have become evident more recently—in Czechoslovakia and Hungary since 1973 and in Romania since 1972.

LAND STOCK AND RECLAMATION PROGRAMME

During the period 1971-1975, all the countries of the region were increasingly concerned with the question of conservation and amelioration of land stock, in particular of arable land. In 1975 Bulgaria, Czechoslovakia, Poland and Romania enacted new legislation related to the protection of land stocks. The data in table 2.2 indicate decreasing trends in the area of agricultural land, a decreasing share of arable land in total agricultural land stock, and decreasing acreage of arable land

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[3] The only exception for the 1971-1975 period is the Bulgarian case, where the price element was probably dominant, and reversed the nature of the relationship. The "irregularity" is smaller on the basis of data at current prices than on that of data at constant prices. The latter series have not been adjusted for the change of price base that occurred in 1971.

TABLE 2.2

Distribution of agricultural land

(Total in thousands of hectares; arable land per capita in hectares)

Country and period	Agricultural land				Arable land		Land reclamation		
		Percentage share: total = 100						of which:	
	Total	State farms	Collective farms	Individual plots and private farms	Per capita	Percentage of agricultural land	Percentage of arable land	irrigated	drained [b]
Bulgaria									
1965	5 793	13.9	75.3	10.8	0.50	71.9	21.9	21.9	–
1970	6 010	21.3	68.0	10.7	0.49	68.9	24.2	24.2	–
1975	5 955	……… 90.3[a] ………		9.7	0.45	66.4	28.6	28.6	–
Czechoslovakia									
1965	7 160	29.6	59.7	10.7	0.36	70.8	. .	. .	. .
1970	7 093	29.4	59.8	10.8	0.35	70.5	. .	. .	. .
1975	7 004	30.3	62.9	6.8	0.33	70.1	. .	. .	. .
German Democratic Republic									
1965	6 358	6.7	86.4	6.9	0.27	74.2	7.0	1.2	5.8
1970	6 286	7.0	86.6	6.4	0.27	73.4	12.7	5.6	7.1
1975	6 295	7.5	86.5	6.0	0.28	74.6	30.4	12.4	18.0
Hungary									
1965	6 954	16.2	77.5	6.3	0.52	75.3	. .	. .	. .
1970	6 875	15.3	77.9	6.8	0.50	75.5	. .	. .	. .
1975	6 770	15.0	78.2	6.8	0.49	75.7	. .	. .	. .
Poland									
1965	19 637	13.2	1.0	85.8	0.48	77.2	20.1	2.0	18.1
1970	19 543	14.4	1.2	84.4	0.46	77.1	22.4	2.6	19.8
1975	19 209	16.8	1.6	81.6	0.43	76.6	26.8	3.3	23.5

Romania									
1965	14 791	30.2	54.7	15.1	0.52	66.4	2.3	2.3	–
1970	14 930	30.1	54.1	15.8	0.48	65.2	7.3	7.3	–
1975	14 946	30.1	54.0	15.9	0.46	65.2	14.6	14.6	–
Soviet Union									
1965	542 828	57.4	41.2	1.4	0.97	41.2	9.1	4.4	4.7
1970	545 778	61.0	37.5	1.5	0.92	40.9	9.5	4.9	4.6
1975	548 812	64.9	33.6	1.5	0.89	41.1	12.4	6.3	6.1
Byelorussian SSR									
1965	9 863	. .	. .	. .	0.74	64.0	20.4	–	20.4
1970	9 813	34.6	59.1	6.3	0.68	62.9	28.4	–	28.4
1975	9 785	35.0	59.2	5.8	0.66	62.7	39.7	2.3	37.4
Ukrainian SSR									
1965	42 702	. .	. .	. .	0.76	79.9	5.2	1.5	3.7
1970	42 356	21.7	72.4	5.9	0.72	80.5	7.4	2.7	4.7
1975	42 203	23.0	71.2	5.8	0.70	81.2	8.6	4.3	4.3

Sources: As for table 2.1.

[a] Agro-industrial combines: 85.5 per cent.

[b] Figures relate to total drained land, only a part of which is arable.

per capita in all countries. On the other hand, an increasing share of reclaimed land in total arable land was recorded in all countries. Targets for 1976-1980 indicate more ambitious programmes than those already carried out during the period 1971-1975.

Losses in agricultural land are much bigger if considered over a longer period than the decade under review. In Czechoslovakia, for instance, the area of agricultural land has dropped by more than 750,000 hectares (9.7 per cent of total stock) since 1937, including almost 700,000 hectares of arable land (12.4 per cent of total arable). In the Soviet Union, as a result of the vast programme of cultivation of virgin lands, the area of arable land per capita reached 1.06 hectares in 1958. The corresponding figure of 0.89 hectares for 1975 reflects primarily the increase in the population during the 17-year period. There were net additions to the stock of arable land of 3 million hectares over the same period.

Administrative bans or restrictions on using arable land of a higher soil quality for non-agricultural purposes, recently introduced in some countries, has not been considered a sufficient measure for solving the problem of shortage of arable land. Conservation and extension of the arable land stock has been the central theme of long-term programmes aiming at protecting the land against erosion, and restoring land desolated by industrial or mining exploitation. It is certainly clear from government action that *erosion* is considered as a central problem. In Bulgaria, for instance, 72 per cent of arable land is exposed to the damaging effects of water erosion.

According to some professional estimates, more than 100 million hectares of land, including 57 million hectares of arable, have been damaged by different kinds of erosion in the Soviet Union.[4] The same source gives an estimate of 10 billion roubles annual loss due to erosion effects, 70 per cent on account of water and 30 per cent on account of wind erosion. On several occasions (e.g. 1967 and 1976) the Central Committee of the CP of the Soviet Union has given attention to special anti-erosion and anti-mud stream measures in addition to medium- and long-term programmes.[5] There are also programmes for restoring soil devastated by industrial and mining exploitation. A professional source has reported that in 1975 more than 1 million hectares of agricultural soil was destroyed, approximately half of it by so-called industrial dumps and the other half as a result of peat digging.[6] The 1976-1980 plan envisages a large-scale programme of creating field-protection forest belts (an area of 335,000 hectares) and consolidation and afforestation of an additional 1 million hectares of ravines, sandy areas, river banks and the like.

Targets for afforestation have been explicitly mentioned in the Bulgarian and Romanian plans. In Poland, the programme for the management of farm land in 1976-1980 has been revised and approved by the highest political bodies.

In the Soviet Union, land reclamation programmes also include measures for improving soil fertility by *chemical amelioration*. Apart from the application of chemical fertilizers, a huge area of the Soviet arable land stock requires special measures for liming acid soils. Such measures were applied to an area of 25 million hectares in the period 1971-1975, and the area is planned to be enlarged to 37 million hectares in the current quinquennium. Targets for spreading gypsum and other materials to neutralize the excessive salinity of some soils may involve some millions of hectares.[7]

For all the importance of these various issues, however, the biggest problems in land management remain centred around climatic conditions, in particular the problem of moisture. The greater part of Soviet arable land is located in arid and semi-arid zones: 72 per cent of cultivated land suffers from a more or less permanent insufficiency of moisture. To combat the damaging effect of arid climate, new technologies ("dry farming") have been devised and applied on a large scale. But the national management of water resources through the construction of vast irrigated areas has remained, in spite of heavy capital requirements, the key component in a complex programme of *land reclamation* and amelioration.[8] On the other hand, there are also regions where swamp lands and marshes require the application of appropriate amelioration measures. Since 1966 (plenary session of the Central Committee in May of that year), land reclamation has been a permanent concern of the Soviet Party and state leadership, with a view to solving the problem of wide annual fluctuations in crop production. Zones of guaranteed grain and vegetable production are to be established or expanded in the period 1976-1980. The use of irrigated land accounted mainly for the excellent results in cotton growing in the period 1971-1975.

The 1976-1980 plan lays down targets which indicate that almost 10 million hectares of land will be reclaimed, approximately one-half of which is to be irrigated and one-half to be drained. The programme also foresees the application of new technologies, with the use of sprinkling machinery in irrigation and closed-system techniques in drainage.[9] Due to the rather high retirement rate of installations using obsolete techniques, gross additions to irrigated areas of 4.6 million in 1971-1975, have contributed to the expansion of the total irrigated area from 11.1 million hectares in 1970 to just 14.5 million hectares in 1975. Net additions to the area of drained land of 2.8 million hectares over the same period represented about 63 per cent of total additions.[10]

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[4] G. Gaponenko and V. Ivaschenko, "More rational utilization of land resources" in *Planovoe Khozyaistvo*, No. 9, 1976, pp. 13-15. Ravines (*ovragi*) are reported to make up 5 million hectares.

[5] *Pravda*, 7 September 1976, and *Ecotass*, No. 46, 17 November 1975.

[6] B. P. Kolesnikov, "Problems of land restoration", in *Priroda*, No. 4, 1975.

[7] At present there are about 50 million hectares of acid soils which need liming and about 100 million hectares of saline soils. See N. Borchenko, "Chemicalization—the most important factor in the intensification of agriculture", in *Planovoe Khozyaistvo*, No. 9, 1976, p. 91.

[8] *Pravda*, 28 October 1972, and "On the plan for land reclamation in 1976-1980 and measures to improve the utilization of reclaimed land", in *Pravda*, 5 August 1976.

[9] The wastage of arable land under the traditional system of irrigation based on a network of canals has been estimated at 3.5-4.0 per cent. See E. Petrov and Zh. Strashilov, "Exploitation of land resources in agriculture", in *Planovo Stopanstvo*, No. 10, 1974, p. 15 (in Bulgarian).

The Soviet programme for 1976-1980 envisages an expansion of the area of ameliorated land by 9.6 million hectares, and calls for the expenditure of 40 million roubles to carry this out, an amount which represents more than 23 per cent of total investment in agriculture. In the German Democratic Republic too, an increase of 520,000 hectares in the area of irrigated land is planned. The Bulgarian target is more modest for the period 1976-1980—200,000 hectares, but the long-term programme for the period up to 1985 envisages a total increase of 700,000 hectares. The Romanian plan calls for an increase in the area under irrigation to 3 million hectares by 1980, representing three-fifths of the total irrigable area in the country.

Land protection is one of the main issues of agricultural policy of Albania. Besides the legal enforcement of the rational use of arable land (the agro-technical code), the national plan envisages an increase in total area of arable land of not less than 8 per cent by 1980.

LABOUR AND LABOUR PRODUCTIVITY

The trend towards a declining level of agricultural employment, in both absolute and relative terms, has been the outcome of a policy of intensive industrialization and modernization of the national economies of all the countries of the region. The flow of active population from the land proceeded rapidly throughout the two decades before 1965, and has continued during the decade under review. (The only exception is Albania, where, as mentioned before, the policy goal has been to stop the outflow of rural labour.) This process is part of a larger transformation in the social structure of these societies, and is linked closely to the process of urbanization. It should be mentioned that the decline in the farm labour force has progressed at a faster pace than in the case of the rural population as a whole. Figures for the share of agricultural in total employment are considerably lower in all countries (table 2.3) than the figures for the share of rural in total population (see text table below).

Rural population (A) and active population in agriculture (B), 1975

(Percentage share, total = 100)

	A	*B*
Bulgaria	42.0	28.4
Czechoslovakia	34.3	13.9
German Democratic Republic	24.6	10.6
Hungary	49.8	22.7
Poland	44.3	30.7
Romania	56.5	38.0
Soviet Union	38.7	22.6

Source: CMEA Statistical Yearbook 1976.

These figures provide a rough indication of the share of the rural population employed in non-agricultural activities in the countryside, or in the nearest urban or industrial centres. From that point of view, two groups of countries can be discerned: Czechoslovakia, the German Democratic Republic and Hungary, where a minority of the rural population lived from agricultural occupations in 1975 (40.5, 43.1 and 45.6 per cent); and the other countries, where agricultural workers are still in the majority (Soviet Union 58.4, Romania 67.3, Bulgaria 67.6 and Poland 69.3 per cent). Similar results on the de-agrarization of the rural population are provided by an analysis made in a Hungarian study. In only 17 per cent of families in Hungarian villages were all members employed in farming in the early 1970s, and an additional 24 per cent of families had only one member working in agricultural activities. Thus the majority (around 60 per cent) of families did not have any member working permanently in agricultural occupations.[11]

Inter-country differences in the size of negative rates of changes in agricultural employment are not closely associated with the share of the agricultural population in the total population of the given country. High rates are recorded in Romania and Bulgaria, but also in the German Democratic Republic (1966-1970) and Czechoslovakia (1971-1975). On the other hand, Poland has recorded the lowest negative rates of the whole decade. Information on forecast future trends (1976-1980) is available only for Bulgaria, where the rate of decline should be lower than in 1971-1975, but still rather high (—3 per cent), and for the Soviet Union, where it is forecast that the rate of decline will be greater than in 1971-1975 (about 1.9 per cent). It seems that the process of collectivization of agriculture (organization of large-scale socialist farming and the industrialization of farming) has had an impact on the release of manpower from agricultural activities. The temporary shortage of farm labour which occurs in some countries indicates, however, that this process has not been comprehensively followed up by the application of industrial methods and labour-saving techniques. The case of Bulgaria is very illustrative in this regard. With the agricultural labour force making up 28.4 per cent of the total, the Bulgarian Government had in 1974 to enact temporary administrative restrictions on migration of rural labour to the towns.

The outflow of agricultural labour has affected the age and sex structure of the remaining active population in ways that differ from country to country. In countries such as Bulgaria, Romania and, in particular, Poland, where the level of technical development of agriculture has lagged behind the development of the rest of the economy and especially that of industry, the outflow of labour has not been adequately compensated for by an inflow of skilled labour. In these cases, then, deterioration in the age and sex structure of the agricultural labour force has been a major element in the situation. In Poland, for instance, over 60 per cent of private farmers

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[10] About 1 million hectares of ameliorated land (3.5 per cent of the total) remained uncultivated in 1975. See *Narodnoe Khozyaistvo SSSR v 1975 gody* (*Statistical Yearbook for 1975*), pp. 387 and 389.

[11] E. Csizmadia, "New features in Hungarian agriculture in the 1970s", in *Acta Oeconomica*, No. 3-4, vol. 12, 1974, pp. 360-361.

TABLE 2.3

Active population in agriculture

Country and period	*Average annual percentage change*	*Year*	*Percentage share; total active population = 100*	*Percentage share of wage- and salary-earners; total active population in agriculture = 100*
Bulgaria		1965	44.9	11.1
1966-1970	−3.8	1970	35.2	18.5
1971-1975	−3.4	1975	28.4	64.7
Czechoslovakia		1965	19.5	27.5
1966-1970	−1.3	1970	16.8	26.6
1971-1975	−2.7	1975	13.9	28.4
German Democratic Republic		1965	14.6	22.1
1966-1970	−3.3	1970	12.2	20.1
1971-1975	−2.3	1975	10.6	23.9
Hungary		1965	29.7	20.6
1966-1970	−1.0	1970	26.4	20.0
1971-1975	−2.5	1975	22.7	21.4
Poland		1965	39.1	10.6
1966-1970	−0.3	1970	34.3	13.8
1971-1975	−0.3	1975	30.7	16.2
Romania		1965	56.8	7.7
1966-1970	−2.3	1970	49.0	9.1
1971-1975	−4.6	1975	38.0	12.6
Soviet Union		1965	30.5	26.6
1966-1970	−2.3	1970	24.8	31.5
1971-1975	−0.1	1975	22.6	35.1
Byelorussian SSR		1965	45.5	21.9
1966-1970	−2.4	1970	36.7	26.6
1971-1975	−1.3	1975	31.6	28.7
Ukrainian SSR		1965	38.3	13.0
1966-1970	−3.3	1970	30.0	16.0
1971-1975	−1.5	1975	26.1	19.1

Sources: As for table 2.1.

were over 50 years old in 1974, and female labour made up more than half of the total working force.

In all countries, the structure of manpower by skills has been changed with the intensification and modernization of agriculture: skilled labour and labour in traditionally non-agricultural occupations (machine operators, for instance) are becoming important. By 1975 about 70 per cent of persons employed in agriculture in the German Democratic Republic were skilled workers; the plan for 1976-1980 envisages an increase to up to 90 per cent. It has been reported that in Czechoslovakia more than 20 per cent of the workers employed in agriculture are under 30 years of age.[12] Similar changes have been reported in Hungary and the German Democratic Republic.

The industrialization of agriculture and the expansion of large-scale socialist farming have caused changes in the social structure of the agricultural work force. Except in Poland, where private farmers make up the great majority of the work force, collective farmers have been in the past in the majority throughout the region. They remained in the majority at the beginning of the new five-year period, except in Bulgaria, but their share has decreased. All countries have recorded an increasing proportion of wage- and salary-earners in farming activities. The process has been exceptionally fast in Bulgaria. After the setting up, in 1971, of agro-industrial combines, and the vigorous promotion of the institutional transformation of farms, there was a steep rise in earners as a percentage of total work force from 18.5 per cent in 1970 to 64.7 per cent in 1975.

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[12] J. Baryl, "Questions of further development of agriculture and the food industry", in *Czechoslovak Economic Digest*, Prague, No. 8, December 1975, p. 46.

As far as *labour productivity* (in terms of gross output per employee) is concerned, trends in all countries are characterized by high annual average growth rates, with the exception of the Soviet Union 1971-1975 and Poland 1966-1970. (See text table below.) These trends are the logical consequences of increasing output and decreasing labour force. Four countries—Bulgaria, Czechoslovakia, the German Democratic Republic and the Soviet Union—recorded lower rates in the second part of the decade in comparison with those in the first part. In Hungary, Poland and Romania, the rate profile has been reversed.

Labour productivity

(Average annual percentage change)

	1966-1970	*1971-1975*	*Plan 1976-1980*
Bulgaria	7.5	7.2	7.0
Czechoslovakia	7.3	6.0	..
German Democratic Republic	6.9	4.5	..
Hungary	3.7	7.7	..
Poland	2.8	4.1	..
Romania	4.5	11.5	..
Soviet Union	6.7	0.4 [a]	5.1

Sources: As for table 2.1.

[a] This figure is very low because of the exceptional combination of high output in 1970 and exceptionally low output in 1975. When calculated for the 1971-1974 period, the rate is 1.7 per cent.

If labour productivity is correlated to capital intensity (fixed assets to labour ratio), an unusually constant coefficient obtains in both inter-temporal and inter-country comparisons. A value between 0.80 and 0.89 has been recorded everywhere except in Poland (most probably because of the dominance of private farming), in Czechoslovakia in the period 1966-1970, and the Soviet Union in the period 1971-1975 (see text table below). The coefficients indicate increased capital intensity as dominant among the factors influencing increased labour productivity.[13] At the same time, the data confirm the trend to increasing capital-output ratios, i.e. decreasing rates of return on fixed assets.

Ratio of changes in labour productivity to changes in capital intensity

(Coefficients)

	1966-1970	*1971-1975*
Bulgaria	0.83	0.85
Czechoslovakia	1.07	0.88
German Democratic Republic	0.89	0.88
Hungary	0.80	0.85
Poland	0.95	0.95
Romania	0.82	0.84
Soviet Union	0.87	0.63 [a]

Sources: As for table 2.1.

Note: Derived from indices based on 1965 = 100. Coefficients in the table represent $\frac{\text{change in labour productivity}}{\text{change in capital intensity}} = \frac{\text{change in output}}{\text{change in fixed assets}} = \frac{1}{\text{capital-output ratio}}$

[a] 1971-1974: 0.74.

GROSS INVESTMENT AND FIXED ASSETS

If growth rates of gross investment in agriculture (in terms of annual averages) for the period 1971-1975 are compared with those of the economy as a whole, it emerges that only in the Soviet Union have the rates in agriculture outpaced the over-all rates. With the exception of the German Democratic Republic, the rates were, however, rather high: more than 5 per cent in Hungary and almost 7 per cent—the highest in the region—in Czechoslovakia (see text table below). In all the east European countries they were lower than in the period 1966-1970, indicating a relative deceleration in agricultural investment spending, as mentioned before. The inter-country spread of the ratio of agricultural investment to total investment was between 10.8 per cent for Czechoslovakia and 15.2 per cent for Bulgaria (table 2.4). The data on the Soviet Union show trends opposite to those of east Europe. The 9.8 per cent rate of growth of agricultural investment in the period 1971-1975 was among the highest in the area and the 26.2 per cent investment ratio (for the total agro-industrial complex) exceeded by far the corresponding figures for the east European countries.[14]

Gross investment in agriculture

(Average annual percentage change)

	1971-1975	*Plan 1976-1980*
Bulgaria	5.6	9.0
Czechoslovakia	6.8	2.2
German Democratic Republic	3.8	5.6
Hungary	5.3	1.0
Poland	10.2	8.6
Romania	8.2	8.5
Soviet Union	9.8	5.5

Sources: As for table 2.1.

Note: Calculated on the basis of total investment for the given five-year period in relation to total investment in the previous five-year period.

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[13] For instance, the dominant role of fixed assets in the "social productivity of labour" in Bulgarian agriculture has been demonstrated by V. Anachkova ("Factors in the growth of net output in agriculture", in *Planovoe Stopanstvo*, No. 3, 1973, p. 29) (in Bulgarian). By using a regression model the author obtained as relative weights: 54.2 per cent for fixed assets, 16.6 per cent for labour inputs, 14.3 per cent for material (raw materials) inputs and 14.9 per cent for inputs of residual factors.

[14] This last figure needs some clarification. Normally, according to Soviet planning methodology, data on agricultural investment include investment expenditures in non-agricultural branches closely related as suppliers to agriculture. Investment in agriculture proper has been in 1971-1975 around 76 per cent of total spending, which means that the investment ratio for agriculture proper was slightly higher than 20 per cent—still considerably higher than the highest figure in eastern Europe.

Table 2.4

Gross investment and fixed assets in agriculture

	Gross investment				*Fixed assets; annual average*			of which: *Machinery and equipment*		
	In millions of national currency units	*Percentage of total*	*Index, 1966-1970 = 100*	*Year*	*In billions of national currency units*	*Percentage of total*	*Index, 1965 = 100*	*Percentage of total fixed assets in agriculture*	*Index, 1965 = 100*	*Ratio of fixed assets to gross investment in agriculture (coefficients)*
Bulgaria										
				1965	3.05	14.1	100.0	29.4	100.0	8.17
1966-1970	492	16.1	100.0	1970	4.35	13.2	142.9	26.2	127.0	8.24
1971-1975	653	15.2	132.7	1975	5.87	12.4	192.8	26.2	171.5	8.17
Czechoslovakia										
				1965	95.0	7.6	100.0	23.2	100.0	11.48
1966-1970	8 636	11.1	100.0	1970	119.1	7.9	125.4	23.4	126.5	13.52
1971-1975	12 026	10.8	139.3	1975	157.4	8.1	165.7	25.0	178.4	10.39
German Democratic Republic										
				1965	28.4	7.2	100.0	31.2[b]	100.0[b]	10.26
1966-1970	3 820	14.1	100.0	1970	37.5	8.0	132.0	31.1	131.6	8.62
1971-1975	4 615	12.6	120.8	1975	47.8	8.3	168.1	31.0	167.1	9.36
Plan 1976-1980	6 080	12.6	159.2							
Hungary	a									
				1965	77.9	8.1	100.0	21.2	100.0	12.0
1966-1970	10 440	15.9	100.0	1970	112.3	9.3	144.2	19.8	134.5	6.7
1971-1975	14 921	13.0	129.5	1975	188.1	11.5	241.5	21.6	246.7	10.7
Plan 1976-1980	21 200	12.2	136.0							

Poland										
1966-1970	32 188	16.1	100.0	1965	519.0	16.4	100.0	11.3	100.0	21.2
1971-1975	52 513	13.7	163.1	1970	625.0	15.9	120.4	19.7	149.2	17.7
				1975	792.0	15.3	152.6	22.5	228.3	11.7
Romania										
1966-1970	10 311	15.6	100.0	1965	69.8*	13.5	100.0	. .	. .	9.10
1971-1975	15 393	14.0	149.3	1970	87.1*	11.5	124.7	. .	. .	6.80
Plan 1976-1980	23 280	11.6	225.7	1975	135.2*	11.4	193.7	. .	. .	7.51
Soviet Union										
1966-1970	16 431	23.2	100.0	1965	77.0	12.3	100.0	26.3[c]	100.0[c]	8.08
1971-1975	26 301	26.2	160.1	1970	106.0	12.1	140.0	23.2	128.6	7.37
Plan 1976-1980	34 300	27.4	208.8	1975	168.0	13.4	227.0	21.6	205.4	7.10

Sources: As for table 2.1.

Note: All figures in value terms relating to five-year periods are annual averages. Unless otherwise stated, all value data are at constant prices, except for Bulgaria. Data for fixed assets refer to the beginning of the year for Hungary, to the annual average for the German Democratic Republic and to the end of year for all other countries.

[a] At current prices.

[b] 1967.

[c] Socialist sector: fixed assets for this sector were 55.8 billion roubles in 1965, 81.5 in 1970 and 140.0 in 1975.

The majority of the plans for 1976-1980 have envisaged a very pronounced deceleration in growth rates of total investment spending, and this is consistent with the strategic option relating to the pace of over-all expansion and to the objective of improving efficiency in the use of available resources and factor inputs. A higher growth rate than in the period 1971-1975 has been planned only in the German Democratic Republic. The planned relative decrease in investment spending in agriculture is in most countries less pronounced when compared with the growth rates of over-all investment spending, with Czechoslovakia and Hungary as exceptions. Higher ratios of agricultural to total investment for 1976-1980 in comparison with 1971-1975 can be identified for Bulgaria, Poland and the Soviet Union, where the ratio is planned to reach an extraordinarily high 27.4 per cent for the total agro-industrial complex, or in agriculture *stricto sensu*, an estimated 21 per cent.

The five-year plan for *Albania* envisages a 7 per cent average annual growth rate in agricultural investment spending in relation to the 1975 level. This rate is slightly lower than the expansion rate of total investment, but higher than that of industrial investment. State outlays on agriculture account for 14.7 per cent of total investment for the whole economy and those of collective farms 7.8 per cent, which brings agricultural investment up to 22.5 per cent of total investment spending. Most of this relatively large amount has been allocated to the modernization of agricultural technology, and to projects related to land reclamation and amelioration. In addition to the expansion of cultivated areas, the building of new irrigated systems should increase the acreage under irrigation by 18 per cent. The plan also envisages a 20 per cent increase in the stock of tractors (in terms of 15 horse power units) and a 65 per cent increase in the application of chemical fertilizers per hectare.

Trends in *fixed assets* display a smooth upward tendency in all countries. As far as the relationship between rates of increase of fixed assets and investment is concerned, the Soviet Union is the only country in the region where, for the whole decade, both trends were in close correspondence on an annual basis (see chart 2.1). Among the east European countries a close association has been visible in Bulgaria since 1969, but in the other countries not before 1972-1973. Trends in Poland do not demonstrate any tendency towards decreasing the gap in the dynamics of the two trends. The gap—already large by the end of the 1960s—has had a tendency to grow bigger, particularly after 1971, suggesting a rising stock of unfinished investment undertakings.

Growth in fixed assets

(*Annual average percentage change*)

	1966-1971	*1971-1975*
Bulgaria	7.4	6.5
Czechoslovakia	4.6	5.7
German Democratic Republic	5.7	5.0
Hungary	7.6	8.2
Poland	2.9	4.9
Romania	6.0	9.5
Soviet Union	7.1	10.1

Sources: As for table 2.1.

Note: The base year is the end year of the previous five-year period.

The average annual rates of increase in stocks of fixed assets for most east European countries were between 5 and 6 per cent in the period 1971-1975. The highest rate (over 10 per cent) was recorded in the Soviet Union (see text table above).

The available data on changes in gross investment spending and the value of fixed assets provide a basis for an estimation of the share of net investment (net additions to fixed assets in value terms) in total agricultural investment spending (see table below).

Net additions to fixed assets in relation to gross investment outlays, 1971-1975

(*Percentage share*)

Bulgaria	49.0
Czechoslovakia	63.7
German Democratic Republic	44.6
Hungary	75.8*
Poland	63.7
Romania	62.6
Soviet Union	62.0

Sources: As for table 2.1.

Four countries had a ratio of net investment to gross investment of around two-thirds, Bulgaria and the German Democratic Republic something below one-half, and Hungary around three-fourths. The estimated ratio for the Soviet Union for 1976-1980 indicates approximately the same relationship between net and gross investment.[15] Over the long run the relationship between the two magnitudes has tended to be very stable, except for Poland, suggesting some constancy in rates of replacement and the incidence of unfinished construction.

A general impression about the pace of technological innovation in agricultural production can be obtained by dividing the value of the stock of fixed assets by investment expenditures in agriculture in a given year. Whereas at the beginning of the decade under review, in 1965, the inter-country spread of these coefficients for eastern Europe was 8.17 to 21.2, in 1975 it was only 7.51 to 11.7. The corresponding coefficients in the Soviet Union were even lower—8.08 and 7.37—due primarily to large-scale investment spending in agriculture over the whole decade. The data based on five-year averages for investment spending eliminate the impact of annual fluctuations and give coefficients that are 1 to 3 points higher than those obtained on an one-year basis. The inter-country pattern is similar, however, and the tendency towards declining values is confirmed (see text table).

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[15] The estimate is based on data provided by G. Gaponenko, "New frontiers in the agrarian policy of the Party", in *Planovoe Khozyaistvo*, No. 5, 1976, p. 30.

Ratio of the value of fixed assets in 1975 to the average annual value of investment in agriculture in the period 1971-1975

(*Coefficients*)

Bulgaria	8.99
Czechoslovakia	13.09
German Democratic Republic	10.34
Hungary	12.61
Poland	15.08
Romania	8.78
Soviet Union	8.34

Sources: As for table 2.1.

These data confirm accelerating trends in the introduction of technological innovations into agriculture in all the countries of the region. This has been a consequence of the policy option within global development strategies relating to technological progress. The coefficients of around 13 for Czechoslovakia and Hungary demonstrate a relative lagging behind of agricultural investment spending in these countries.[16] The highest coefficient is the Polish one (about 15) but this, of course, reflects the institutional structure of Polish farming, where small-scale private farmers are dominant.

The pattern of investment spending has been characterized in most countries by a rather constant share of *machinery and equipment* in total investment outlays in most east European countries (table 2.4). Except in Poland, ratios of the value of machinery and equipment to the value of total fixed assets have remained the same or have increased slightly (1 to 2 percentage points) in 1975 in comparison with 1970. Poland has evinced a different pattern of investment spending; here the emphasis was on increasing the share of mechanization. This was influenced to a great extent by the relatively low share of mechanization in the country (11.3 per cent of total fixed assets in 1965). Accelerated spending on mechanization brought about a steep increase in investment in machinery and equipment (an almost 16 per cent average annual rate) during the period 1966-1970. With a 19.7 percentage share of machinery and equipment in total agricultural investment in 1970 and one of 22.5 in 1975, Poland approached the corresponding figures for Hungary. In the Soviet Union, the increase in investment in machinery and equipment was rather steep in 1971-1975 (9.8 per cent), but below the 11.4 per cent increase in total fixed assets. Thus the share of machinery and equipment decreased further, and was down to 21.6 per cent of total investment in 1975, a ratio characteristic of the countries with the lowest relative intensity of mechanization in the region.

The aggregate data on changes in rates of investment in machinery and equipment say nothing about new developments in the mechanization of agriculture. The initial stage of mechanization, which involved the supply of machinery to mechanize particular operations in crop and animal production, has been passed. The *optimization of the machine mix* delivered to agriculture has become an essential condition for the efficient use of machinery. During a round-table discussion on problems of increasing the efficiency of production and services in agriculture, it was reported that the application of new, powerful types of tractors (for instance the K-700, K-201 and T-150) in Soviet farming has not brought about the expected results because the tractors delivered were not equipped with the necessary complementary machines. Out of 66 different types of attachments and instruments, only 35 were planned for delivery in 1976.[17] The redressing of disproportions and bottlenecks linked with less than full utilization of available machinery has been envisaged in the Soviet 1976-1980 plan through differentiated rates of deliveries of different types of agricultural machines. Deliveries of all agricultural machines (in value terms) are to be stepped up in relation to 1971-1975 by 45.6 per cent, and those used in livestock breeding and mixed fodder plants by 53.7 per cent, while the plan provides for an increase of only 11.8 per cent in deliveries of tractors, of 22.7 per cent in deliveries of trucks and of 19.5 per cent in those of grain harvesters.[18] In spite of the high share of machine operators in total agricultural employment in the Soviet Union (14.9 per cent in 1975), the shortage of this type of labour is an additional problem, as is that of spare parts and repair services, which impedes the more efficient use of machinery.[19] The plan envisages an increase from 3.9 million machine operators in 1975 to 5 million in 1980, or to more than 20 per cent of the total agricultural labour force.

The wider distribution and more intensive use of machinery has led to a rapid widening of the range of agricultural machinery produced. Whereas in 1965 Soviet industry supplied 380 types of machines, the number of types was more than 1,400 in 1975. The extent of this range of machinery and the need for further development of agricultural machine building with a view to speeding up the transition to a broader application of complex mechanization prompted the elaboration by research institutes of a *machine system* for 1976-1980. The system comprises more than 2,500 items of machinery, instrumentation and equipment, designed for the introduction of complex mechanization into crop growing, animal husbandry, land reclamation and forestry. The full implementation of this programme should step up the level of mechanization in crop growing by 28 per cent, in animal husbandry by three times, and in land reclamation by two times during the period 1976-1980 in comparison with the previous five-year period.[20]

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[16] It should be noted that the annual fluctuations in the coefficient for the latter country were the largest in the region during the period 1971-1975. In Czechoslovakia the level of investment in agriculture had been very high in the previous period.

[17] *Voprosy Ekonomiki*, No. 2, 1976. (Report by R. A. Kim of the All-Union Farm Machinery Association.)

[18] G. Gaponenko, *op. cit.*, p. 31.

[19] It has been reported that the stock of tractors in the Soviet Union increased by 49 per cent during the period 1965-1975, that of grain harvesters by 33 per cent, and the number of all types of machine operators by only 26 per cent. See G. Loza and J. Kurtzev, "The growth of productive forces in agriculture during the 10th five-year plan", in *Voprosy Ekonomiki*, No. 7, 1976, p. 75.

[20] V. Popov, "Increasing labour productivity in agriculture", in *Voprosy Ekonomiki*, No. 8, 1976, p. 85.

Changes in the stock of tractors and grain harvesters 1971-1975

	Thousands of physical units			*Ratio of*	
Country	*Gross additions*	*Net additions*	*Replacements*	*Replacements to the 1970 stock*	*Units delivered during the 1971-1975 period to the 1975 stock*
		A. Tractors			
Bulgaria	30.7	13.3*	17.4*	32.5*	46.1*
Czechoslovakia	48.6	5.7	42.9	31.5	34.2
German Democratic Republic	44.1	–8.9	53.0	35.6	31.5
Hungary	34.5	6.9	27.6	40.1	55.6
Poland	195.0	180.0	15.0	6.5	47.4
Romania	61.5	13.0	48.5	45.3	51.3
Soviet Union	1 667.0	358.5	1 308.5	66.2	71.4
		B. Grain harvesters			
Soviet Union	448.6	57.0	391.6	62.9	66.0

Source: CMEA Statistical Yearbooks.

The production of agricultural machinery was one of the first fields of co-operation within the CMEA framework. Since 1958 it has been possible for agricultural machines to undergo organized testing and, if approved, to be included in the international system of machines for complex mechanization in agriculture and forestry (ISM). In 1974, ISM contained 724 categories of machine, of which 440 are currently produced (about 60 per cent) and 1,758 types of machine, of which 867 are currently produced (around 50 per cent). For example, the IMS specifies 39 types of tractors and 129 types of means of transportation.[21] The bilateral Bulgarian-Hungarian association "Agromash" was set up as early as 1965. This is now a CMEA multilateral international association. Its objectives are to promote co-operation and specialization and also technological innovation in the field of machine engineering. During 1976-1980, for instance, Bulgaria will reduce the range of agricultural machinery produced to only 23 items, and will import an additional 50 types from the other CMEA countries. During the period 1971-1975 Czechoslovakia produced 49 new types of machines and imported another 39 new types from the other CMEA countries, mostly from the Soviet Union and the German Democratic Republic.[22]

A systematic presentation of programmes relating to the scope and development of specialization in the production of agricultural machines in the countries within the CMEA framework is provided by table 2.6. Whereas during the period 1971-1975 specialization encompassed 71 types of factors and agricultural machines, it is planned to enlarge this number to 140 by 1980, which is 10 per cent of the total number of types of machines included in ISM, and 18 per cent of the number of machines in the system already in production.[23] The very marked expansion of foreign trade in agricultural machinery is another consequence of the intensification of co-operation and specialization within the CMEA in this field.

Data available on changes in *stocks of tractors* demonstrate two tendencies (see table 2.5). First, the tractor of low engine capacity (in terms of h.p.) has tended to be replaced by more high-powered tractors. In 1965, the majority of tractors in use in the east European countries and the Soviet Union were of an average capacity of below 40 h.p. (in Romania around 50 h.p.). By 1975, in all countries except Poland, the average power capacity of tractors had been stepped up : to over 50 h.p. in the other CMEA countries and over 60 in the Soviet Union and Romania. The second trend is related to the increasing power of tractor capacity per hectare of arable land. Here the inter-country spread is smaller as of 1975 than it was in 1965, but nevertheless rather large—between 66 h.p. per 100 hectares of arable land in Hungary and 167 in the German Democratic Republic. To achieve the intensity of tractor power per unit of land recorded in 1975 in the German Democratic Republic the Soviet Union would have to increase its stock of tractors (in terms of engine power) by almost two and a half times.[24] Account must here be taken, of course, of differences in the structure of agriculture, and in particular of the structure of utilization of cultivated land.

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[21] S. Shalamanov, "Economic features of industrialization of agricultural production in the CMEA member countries", in *Ikonomicheska Mis''l*, No. 4, 1975, p. 87 (in Bulgarian). He reports that Soviet experts consider that about 20 h.p. of electricity capacity per employee in agriculture are needed for mechanization of basic production processes and 50-60 h.p. for complex mechanization. At present they estimate the electricity capacity per employee in Soviet agriculture at about 10 h.p. See also, Yu. Kormnov and B. Frumkin, "Agro-industrial integration in the CMEA member countries", in *Planovoe Khozyaistvo*, No. 1, 1975, p. 86.

[22] G. Shmelev, "The agro-industrial sphere in the CMEA member countries", in *Voprosy Ekonomiki*, No. 10, 1975, p. 102.

[23] G. Bychkov, *op. cit.*, p. 108.

[24] Similar estimates were made by Soviet agricultural experts in 1975. The volume of productive fixed funds in that year per unit of agricultural land was about 50 per cent of the volume required by standards of optimal use of factor inputs. These standards have been elaborated by scientific and research establishments in the Soviet Union. See G. Loza and J. Kurtzev, *op. cit.*, p. 72.

TABLE 2.5

Stocks of farm machinery

Country and period	*Tractors; in thousands*	*Total nominal capacity in thousands of h.p. of tractor engines*	*Average engine size in h.p. per tractor*	*Nominal capacity of tractor engines in h.p. per 100 hectares of arable land*	*Grain harvesters; in thousands*
Bulgaria[a]					
1965	42.0 66.4	1 520	36.2	36	6.9
1970	53.6 93.7	2 151	40.1	54	9.3
1975	. . 136.0	3 332	. .	82	10.3
Czechoslovakia					
1965	125.4	4 707	37.7	88	11.8
1970	136.4	5 786	42.5	109	16.4
1975	142.1	7 693	54.2	147	19.9
German Democratic Republic					
1965	124.3	4 337	34.9	96	15.4
1970	148.9	6 440	43.3	146	17.9
1975	140.0	7 585	54.2	167	11.2
Hungary					
1965	64.2	2 608	40.6	46	8.8
1970	68.9	3 155	45.8	56	11.8
1975	62.0	3 500	56.5	66	14.5
Poland					
1965	131.0[b]	3 875	29.6	25	5.3
1970	231.0	7 746	33.5	51	14.0
1975	411.0	15 476	37.7	103	21.1
Romania					
1965	81.4	4 301	52.8	41	36.8
1970	107.0	6 238	58.3	59	45.2
1975	120.0	7 393	61.6	70	38.1
Soviet Union					
1965	1 613.2	77 580	48.1	35	520
1970	1 977.5	111 595	56.4	50	623
1975	2 336.0	152 494	65.3	68	680

Sources: As for table 2.1.

[a] Upper figure refers to tractors in terms of physical units and lower figure in terms of conventional 15 h.p. tractor units.

[b] Excluding tractors in market gardening.

The ratios of tractors replaced or retired in 1971-1975 to the stock of tractors may give an indication of the pace of technological innovation. Between one-third and more than one-half of the tractor park in 1970 was replaced by new, more powerful tractors in the majority of the countries of the region. In the Soviet Union, the ratio was two-thirds. Poland, with a low ratio of 6.5 per cent, again provides the exception. (See text table on page 44.)

The pace of technological innovation can also be demonstrated by the share of "new" tractors in the tractor stocks of 1975. ("New" tractors are defined as those which were delivered between 1971 and 1975.) In this regard, east European countries may be divided into two groups: the first includes Czechoslovakia and the German Democratic Republic, with new tractors making up about one-third of total stock, and the second the other east European countries, with a new tractor ratio of around 50 per cent. With a 70 per cent new tractor ratio and a 66 per cent new grain harvesters ratio, the Soviet Union showed the highest replacement rate. Account must be taken of the fact that this rate does not indicate only the replacement of obsolete machinery but

TABLE 2.6

The development of specialization in the production of agricultural machinery, based on the recommendations of the CMEA for 1962-1970, the multilateral agreement of the CMEA member countries for 1971-1975, and the draft programme for 1976-1980

(*Types of machines in units, deliveries in thousands*)

Country	*Types of machines produced under the programme of specialization*			*Exports*				*Imports*			
				Types of machines		*Deliveries of machines*		*Types of machines*		*Deliveries of machines*	
	1962-1970	*1971-1975*	*1976-1980*	*1971-1975*	*1976-1980*	*1971-1975*	*1976-1980*	*1971-1975*	*1976-1980*	*1971-1975*	*1976-1980*
Bulgaria	11	26	40	9	18	37	86	27	85	43	213
Czechoslovakia	15	14	41	9	15	52	126	44	67	35	66
German Democratic Republic	19	10	22	10	15	225	163	21	53	43	111
Hungary	7	31	69	17	37	24	79	30	53	64	84
Poland	15	12	37	5	14	8	63	27	50	63	306
Romania	14	29	68	5	8	67	60	4	14	0.3	7
Soviet Union	34	39	87	24	62	132	478	21	44	283	253

Source: J. Bychkov, "Cooperation of the CMEA countries in the field of agricultural machine building", in *Voprosy Economiki*, No. 1, 1976, p. 108.

may imply also problems relating to the quality of maintenance and repair work.[25]

Incomplete data on targets for deliveries of tractors and grain harvesters for 1976-1980 are in accordance with the policy of intensifying the degree of mechanization of agriculture (see text table below).

Planned deliveries of tractors and grain harvesters, 1976-1980

(*In thousands*)

	Tractors	*Grain harvesters*
Czechoslovakia	49	10
German Democratic Republic . . .	49	7.05
Romania	70	16.3
Soviet Union	1 900	538

Sources: National plans.

MATERIAL INPUTS

Almost all documents referring to the plans for the period 1976-1980 call attention to the question of efficiency in the use of material resources. Whereas in industry quantitative targets for reducing material costs are laid down, in agricultural production the objective has been set in qualitative and general terms, with the exception of Bulgaria (target to reduce costs by 4.4 per cent). Past trends are characterized without exception by increasing material costs (see text table on page 33). To a great extent, this is a consequence of a higher level of agricultural technology based on more sophisticated inputs of agricultural origin (selected crop varieties, pedigree animals) and the massive and increasing application of chemical fertilizers, fuel and power, machinery, industrially-processed fodder mix and feed additives, and supplied services of non-agricultural origin. Another factor contributing to higher over-all material intensiveness of agriculture is a structural shift towards livestock and material-intensive production lines in crop production. Global and systematic indicators on these trends are not available from the regular statistical publications, and the professional literature, although rich in partial information, rarely provides a comprehensive analysis.

In the Soviet Union, the share of material costs in gross agricultural output reached a level of 64 per cent in 1975.[26] The complete breakdown of the figure for gross agricultural output was as follows: fodder 46 per cent, of which 8 per cent industrially processed; seeds 10.4 per cent; mineral fertilizers 3.8 per cent; energy supplies and power 3.7 per cent; fuel 2.2 per cent; spare parts 3.4 per cent; depreciation 18.4 per cent. The residual of 12 per cent contains the rather high share of costs on repair and maintenance of machinery, and also of costs related to services rendered to agriculture. The share of inputs of an agricultural origin in the total was around 50 per cent or, if depreciation of fixed assets is excluded, rather more than 60 per cent. To some extent the share of inputs of a non-agricultural origin in total material costs is an indication of the level of industrialization of agricultural production. Data compiled from input/output tables for Czechoslovakia, Hungary and Poland demonstrate such trends with a relatively sharp decrease in the share of inputs of an agricultural origin within a short period of time (see text table below).

Structure of material costs in agriculture by sectoral origin

(*Total material costs = 100*)

A = Agriculture
B = Non-agricultural sectors

Country	*Total*	*Excluding imports*	*Total*	*Excluding imports*
Czechoslovakia	*1967*		*1973*	
A	61.6	63.1	57.3	60.2
B	38.4	36.9	42.7	39.8
Hungary	*1970*		*1972*	
A	46.2	51.1	44.2	48.7
B	53.8	48.9	55.8	51.3
Poland	*1967*		*1973*	
A	75.4	23.1	68.0	. .
B	24.6	76.9	32.0	. .

Source: National statistics.

The 68 per cent share of non-agricultural inputs in material costs in the case of the German Democratic Republic for 1972 is certainly an indicator of the application of highly industry-related technology in agricultural production.

In the long run, trends to change in inputs by sectoral origin can be expected to continue, although the pace of structural change may slow down. The developments expected for Hungarian agriculture in the period up to 1990 are demonstrated by the following figures:

Developmental tendencies in agricultural production in Hungary

(*Indices, based on 1968 prices, with figures for average annual percentage changes in parentheses*)

	1960-1970	*1970-1990 (expected)*
Gross output	123 (2.1)	180-195 (3.0-3.1)
Material costs	152 (4.3)	170-175 (2.7-2.9)
of which:		
of agricultural origin . . .	125 (2.3)	125-150 (1.1-2.1)
of non-agricultural origin .	300 (11.6)	220-230 (4.0-4.7)

Source: A. Lekhel, "Basic tendencies of technological development in Hungary's food production", in *Mezhdunarodnyi Sel'skokhozyaistennyi Zhurnal*, No. 5, 1974, p. 18, table 3.

These past and expected developments for Hungary are of general significance. As far as inputs of an agricultural origin are concerned, the tendency throughout the region is for both the most important elements to decrease in relative importance. In the Soviet Union, for instance, during the period 1971-1974, a 2 per cent decrease in outlays in terms of conventional feed units was achieved. However, because of structural changes in feed mix (increased use of more expensive, industrially processed mixed fodder), the cost effect was a 17 per cent rise. Similar tendencies were recorded in Bulgaria. During the decade 1961-1971, the share of seed inputs in material costs relating to crop production dropped from 18.5 per cent at the beginning to 13.9 per cent at the end of the decade. For feed inputs into animal breeding, the corresponding figures were 89.4 and 82.1 per cent.[27]

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[25] The Secretary-General of the CP of the Soviet Union has criticized the slow pace of replacement of obsolete technology, and referred to the DT-54 tractor, an obsolete machine which has been in production in the Soviet Union for about 30 years.

[26] A. Brylev and J. Zagaitov, "The efficiency of production and material intensiveness of agricultural output", in *Voprosy Ekonomiki*, No. 10, 1976, p. 92, *et passim*.

Intensive research work in agricultural genetics, selection and hybridization of varieties, has brought about considerable results in this field.[28] The application of wheat varieties such as *bezostaia-1* have made it possible in the past to surpass a level of 30 to 32 q/ha. At present new wheat varieties open up possibilities of reaching, on a fairly large scale, yields of 60 q/ha. In recent years, selected varieties of sugar-beet have produced yield of 600 to 800 q/ha. and of cotton 40 to 50 q/ha. Co-operation within the CMEA framework has been an important factor contributing to increasing efficiency and a rapid pace of innovation in this field. During the last five years alone, 929 new crop varieties and hybrids have been internationally tested. According to 1975 data, about 290 varieties have been disseminated throughout the region. The most widespread are Soviet strains of winter wheat, spring barley strains from Czechoslovakia and the German Democratic Republic, and winter rye and sugar-beet strains from Poland.[29] In 1974, the CMEA member countries adopted a multilateral agreement on seeds. A long-run programme (1973-1980) on production, specialization and mutual deliveries of seeds for 45 major crops has been worked out: more than 100,000 tons of seeds and 150 million saplings and grafts are to be exchanged annually.[30] Fodder protein production is another big item in CMEA co-operation in this field. Shortages and insufficient supplies of feed, despite large-scale spending on imported feed, prevent the achievement of optimal efficiency in livestock breeding. In the Soviet Union, for instance, feed inputs for one conventional unit of cattle were on average 25.3 quintals in terms of feed units during the period 1971-1974, while up-to-date zoo-technical standards require 40 to 45 quintals per head of cattle and an optimum mix of components, in particular, of fodder proteins.[31]

As mentioned earlier, the flow of resources of a non-agricultural origin has been boosted vigorously throughout the region, which has led to increasing material costs in global terms, and to a higher share of such inputs in the total costs of agricultural production.[32] A dominant place in these developments is taken by the supply of *mineral fertilizers*. The increasing amounts of fertilizers supplied in absolute terms and in terms of consumption per unit of arable land are given in table 2.7.

TABLE 2.7

Supplies of chemical fertilizers

(In pure nutrient content)

Country and period	*Thousands of tons*	*Kilograms per hectare of arable land*
Bulgaria		
1965	361	86
1970	639	159
1975	679	166
Plan 1980	. .	ca. 250
Czechoslovakia		
1965	893	167
1970	1 227	230
1975	1 604	305
Plan 1980	. .	ca. 370*
German Democratic Republic		
1965	1 313	278
1970	1 535	332
1975	1 826	389
Plan 1980	2 120	450*
Hungary		
1965	357	63
1970	837	150
1975	1 518	276
Plan 1980	2 000	365*
Poland		
1965	1 107	73
1970	2 416	160
1975	3 460	234
Romania		
1965	303	29
1970	702	67
1975	1 196	114
Plan 1980	2 250	228.5
Soviet Union		
1965	6 303	28.4
1970	10 368	46.8
1975	17 477	76.7
Plan 1980	27 273	121*
Byelorussian SSR		
1965	456	76.5
1970	929	159.6
1975	1 520	260.2
Ukrainian SSR		
1965	1 286	38.5
1970	2 165	65.1
1975	3 806	111.8

Sources: As for table 2.1.

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[27] V. M. Petrov, "Material intensiveness of agricultural production and basic factors in its reduction", in *Planovo Stopanstvo*, No. 5, 1974, pp. 34 and 36 (in Bulgarian).

[28] An estimate of the pace of technological innovation in this field has been provided by a Bulgarian source (S. Shalamanov, *op. cit.*, p. 86). Complete renewal of variety mix in crop production, which provides about an 8 to 12 per cent increase in yields, may be achieved over a period of 10 to 12 years.

[29] *Ecotass*, No. 7, 14 February 1977.

[30] Yu. Shintyanin and B. Frumkin, "The agro-industrial complex in the European countries of the CMEA", in *Voprosy Ekonomiki*, No. 2, 1975, p. 89.

[31] See, G. Loza and J. Kurtzev, *op. cit.*, p. 72.

[32] *Ibid.*, pp. 71-72. In Bulgaria, for instance, the share of outlays for mineral fertilizers in total material costs of crop production rose from 17.4 per cent in 1961-1962 to 24.9 per cent in 1970-1971; for chemical agents for protecting crops, the respective figures were 1.8 and 4.3 per cent. See V. M. Petrov, *op.cit.*, p. 34.

The available data for Albania demonstrate the same trends. The global quantity of mineral fertilizers supplied rose from 20,548 tons in 1965 to 188,866 tons in 1971. In 1971, consumption per hectare of arable land was 112 kg. During the period 1971-1975 consumption per hectare rose by 41 per cent, and the 1976-1980 plan calls for an increase of 65 per cent in relation to the 1975 level.

In the Soviet Union the cost effect of this intensive use of mineral fertilizers was a rise of 30 per cent per unit of agricultural output. Plans for a more intensive level of consumption should lead, on the assumption that prices will remain stable and unchanged, to a further 37 per cent rise on costs per unit of output.[33]

Similar developments can be noted in the consumption of *electric power* in agriculture (table 2.8). The electrification of agriculture has been carried on at such a pace that the share of agriculture in total electric energy consumption has increased during the period 1965-1975 in every country except Bulgaria. The highest share in 1975 was recorded in the Soviet Union (7.2 per cent) and Hungary (6.6 per cent). In the other east European countries the consumption of power on agriculture was around 4 per cent of total consumption. The plans do not provide information about future trends (except in the case of the Soviet Union), but ambitious targets in production will lead to increasingly intensive power consumption. The cost effect of increased power consumption in the Soviet Union may be demonstrated by the 43 per cent increase in consumption per unit of output in the period 1971-1974, and the expectation of a not less than 40 per cent increase for 1976-1980.[34] The consumption of oil products in Soviet agriculture rose from 7.3 per cent of material costs (depreciation excluded) in 1966 to 9.3 per cent in 1972.[35]

In Albania, data on the consumption of electric power have not been released. Statistical data refer only to the period up to 1971, and to total energy used in agriculture in horse power. Between 1965 and 1971 the energy capacity of Albanian agriculture increased from 361,000 h.p. to 608,000 h.p. (68.5 per cent), and this was accompanied by a decreasing share of draft animals in the total from 15 per cent in 1965 to 8 per cent in 1971.

Two problems dominate policies relating to the *chemicalization of agriculture*. The first concerns the quality of fertilizers and their mix, and the second the transportation and storage of mineral fertilizers, liming materials and other chemicals. The Soviet plan stipulates an increase in nutrient content of chemical fertilizers from 35 per cent in 1975 to 40 per cent in 1980. Deliveries of highly concentrated and complex fertilizers are planned to reach 85 to 87 per cent of total deliveries. The relative shortage of phosphates, particularly necessary in grain growing, should be overcome by an accelerated rate of production of this type of fertilizer, allowing for a doubling of deliveries from 20.5 million tons in 1975 to 40.3 million tons in 1980. This should change the relative share of phosphate fertilizers in total supplies from 27 per cent to 35 per cent by 1980, a share which is considered to be close to the optimal structure of fertilizer mix. The use of liquified, highly concentrated fertilizers and liquid ammonia should also increase.[36]

TABLE 2.8

Consumption of electric power in agriculture [a]

Country and period	*Total in millions of kWh*	*kWh per hectare of arable land*
Bulgaria		
1965	455	109
1970	675	163
1975	955	241
Czechoslovakia		
1965	1 072	212
1970	1 575	315
1975	2 336	477
German Democratic Republic		
1965	1 349	286
1970	1 870	405
1975	3 329	708
Hungary		
1965	237	45
1970	867	167
1975	1 633	318
Poland		
1965	832	55
1970	1 455	96
1975	2 969	201
Romania		
1965	271	28
1970	710	73
1975	2 014	207
Soviet Union		
1965	21 099	94
1970	38 552	173
1975	73 804	327
Plan 1980	130 000	571*

Sources: As for table 2.1.

[a] Forestry included except for Poland.

Deposits of raw materials for the production of mineral fertilizers are allocated very unevenly within the CMEA area. Only the Soviet Union and the German Democratic Republic dispose of large-scale resources of potassium raw materials. Phosphate-containing rocks are located in the Soviet Union, as is, of course, crude oil, derivatives of which are used more and more in providing urea, ammonia and chemicals for crop protection. The building of new production capacities for ammonia, urea, nitrogen and phosphate fertilizers is envisaged in all the countries of the region for the 1976-1980 period. In most of the countries of the area, export surpluses have been mentioned as production objectives (Bulgaria, for instance). Liming of acid soils and spreading of gypsum is, as mentioned before, planned for a huge area of arable land in the Soviet Union. In the Non-Black-Earth zone alone the share of acid soils is almost 50 per cent of the total area, and the plan envisages liming on 23 million hectares. In Czechoslovakia also, the need for a radical improvement in the use of calcium fertilizers has been stressed; for 1980, a target of supplying more than 2 million tons of calcium fertilizers has been set, with 600,000 tons to be based on steel industry slag.[37]

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[33] A. Brylev and J. Zagaitov, *op. cit.*, pp. 94 and 97.

[34] *Ibid.*

[35] Data derived from input/output tables. G. Shmelev, *op. cit.*, p. 104.

[36] N. Borchenko, *op. cit.*, pp. 28 and 29. The effect of the use of fertilizers in 1974 was 5.6 kg of grains per 1 kg of active substance, which was 1.3 kg more of grain than in 1970. The planned level of consumption of fertilizers should bring the return of grain up to 8 to 9 kg per unit of active substance. See V. Popov, *op. cit.*, p. 90.

In the plans and other policy-formulating documents, reference has been made to a radical change in the use of organic fertilizers. In the Soviet Union, programmes are to be worked out for the processing on farms of fluid wastes into fertilizers and for composting manure with peat. In Albania every socialist farm has been instructed to establish a special team or squad in charge of processing organic fertilizers.

Upward trends in supplies of chemical agents for crop protection are demonstrated in the text table below.

Supplies of chemicals for crop protection

Country and period	*Thousands of tons*	*Kilograms per hectare of arable land*
Bulgaria		
1965	12.9	3.1
1970	12.0	2.9
1975	24.4	5.9
German Democratic Republic		
1965	8.2	1.7
1970	18.6	4.0
1975	22.5	4.8
Poland		
1965	65.8	4.3
1970	53.7	3.6
1975	60.0	4.1
Soviet Union		
1970	292	1.3
Plan 1980	628	2.8*

Sources: As for table 2.1.

Co-operation within the CMEA has been particularly intensive in this field. In December 1973, the member countries of "Interchim"—a CMEA international association—signed a multilateral agreement on an investment programme for the building of capacities for the production of chemical agents on the basis of inter-country specialization and co-operation. During the period 1976-1980, 61 new projects are to be built and 13 existing plants to be modernized and expanded. The programme also lays down targets relating to mutual deliveries.[38]

The optimization of the simultaneous application of mineral fertilizers, chemical agents and increasingly of so-called biological methods of crop protection requires a working out of complex programmes in order to co-ordinate the various measures in the fields of agricultural chemistry, selection of varieties, agro-technology, agrobiology, mechanization and management. Within the institutional framework of the USSR Ministry of Agriculture, complex programmes for the protection of 21 crops were elaborated in 1976.[39]

The second policy issue pertains to the problem of transportation and storage of mineral fertilizers with a view to increasing efficiency and diminishing waste. In the Soviet Union, Czechoslovakia and Hungary, wastage has been estimated at 10-15 per cent of total supplies of fertilizers. The Central Committee of the CPSU and the Council of Ministers of the USSR have accordingly recently adopted a resolution "On measures to further increase the effectiveness of the use of mineral fertilizers, to reduce fertilizer losses during transportation, storage and application to the soil, and to improve agrochemical services for collective and state farms".[40] The Czechoslovak Government also envisages the working out of new regulations for the distribution of fertilizers.

Increasing costs have accompanied changes in the level of *transport* services provided to agriculture. Whereas the unit cost of transporting one ton-kilometre of agricultural products in collective farms in the Soviet Union around 1965 was between 6 and 8 kopeks, it had risen to 12 to 15 kopeks by the end of the decade under review. The same source refers to a figure of more than 2 billion roubles spent by collective farms alone on the maintenance of transport vehicles.[41] The situation for state farms must be similar. The optimal solution of the transport problem in agriculture on a farm scale, on the scale of larger regional complexes, and also on a country scale, is another open issue. It seems that this problem, in spite of its importance, has not attracted the attention of planners and policy makers with the same intensity as the problems just discussed. However, reference has been made to the need to build up the rural road infrastructure in the Soviet Union.

(iv) Changes in the structure of agricultural production: crop farming and animal husbandry

There is no country in the region where the share of livestock production in total agricultural output was not stepped up during the period 1971-1975 in comparison with that of 1966-1970 (table 2.1). These developments were conditioned, above all, by the policy decision to give higher priority to livestock expansion in virtually all the countries of the region. There were explicit planned targets for 1971-1975 on the accelerated expansion of livestock in relation to that of crop production in Hungary and Poland. In the other countries, the evidence is less direct. In the German Democratic Republic and Czechoslovakia, the achievement of self-sufficiency in livestock products seems to have been a policy objective. In both countries the objective has been achieved: the trade deficit in meat and meat products had been eliminated by the end of the 1971-1975 period. In the Soviet Union, after two years of bad harvests (1972 and 1975), the political leadership showed particular concern for the maintenance of livestock herds, which led to massive imports of feedstuffs. The selectivity of this policy can be demonstrated by contrasting upward trends in cattle numbers with the reduction in numbers of grain-based livestock, particularly in pig numbers in 1975. The decrease in the stock of pigs between the beginning of 1975 and the beginning of 1976 was more than 15 million head, or about 20 per cent. The policy of expanding livestock herds at a high rate has had as its ultimate objective an increase in the supply of livestock products to meet increasing home demand and also for export. All the east European countries have achieved this objective, and have recorded export surpluses in meat and meat products, in some cases in spite of a relatively low per capita level of domestic consumption.

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[37] J. Baryl, *op. cit.*, pp. 28 and 29.

[38] G. Shmelev, *op. cit.*, p. 105.

[39] Biological methods have already been applied on 7 million hectares, and the 1976-1980 Soviet plan envisages their application on an area of 25 to 30 million hectares. See N. Borchenko, *op. cit.*, p. 32.

[40] *Pravda*, 20 June 1976.

[41] I. F. Suslov in a round-table discussion, in *Voprosy Ekonomiki*, No. 2, 1976.

The acceleration in the expansion of livestock production in the period 1971-1975 was more pronounced than planned. On the other hand, developments in crop production have remained largely below expectations. The growth rate of gross crop product remained in most countries considerably below the 1966-1970 growth rates, with Hungary providing the only clear exception. In the German Democratic Republic the rate of growth in both periods was below 1 per cent. A 0.7 per cent average annual increase in the period 1971-1975 was the lowest average annual rate of growth recorded in the region during this period. The lagging behind of crop production in relation to planned trends was caused largely by climatic factors. In all countries wide annual fluctuations in crop production also adversely affected trends in total agricultural production and animal production (charts 2.3 and 2.4). There is no country where crop production has not failed to grow in more than one year during this period except Hungary, where considerable fluctuations occurred during the previous five year period, and where the expansion of 1971-1975 started from the low level of 1970. The years of zero or negative growth rate in crop production in relation to the performance in the previous years are as follows:

Annual percentage changes

Year	*Zero or close to zero*	*Negative*
1971	Bulgaria, Poland, Soviet Union	German Democratic Republic
1972	—	Soviet Union
1973	Bulgaria, Romania	German Democratic Republic, Poland
1974	Hungary, Poland	Bulgaria, Soviet Union
1975	—	Czechoslovakia, German Democratic Republic, Poland, Soviet Union

Thus *planned structural proportions* between crop and animal production for 1971-1975 were distorted by unexpectedly unfavourable developments in crop production. The "development" gap between the two main sectors of agricultural production was reduced, but to a greater extent than planned. Inputs provided by crop production, in particular feedstuffs, remained in short supply in relation to the expanding demands of the livestock sector. It is not certain that disproportions would not have appeared even if performance in crop production had been in accordance with plan targets. The lag in the development of the fodder base was an inherited structural problem, which was only magnified during the period 1971-1975. Imported feed supplies have not wholly met shortages, particularly in feeding proteins. The use of domestic crops (grain and potatoes, for instance) to make up for shortages distorted domestic balances and adversely affected efficiency in the livestock sector by raising material costs in fodder. These developments required shifts in priorities in order to redress structural imbalances and increase over-all efficiency in agriculture.

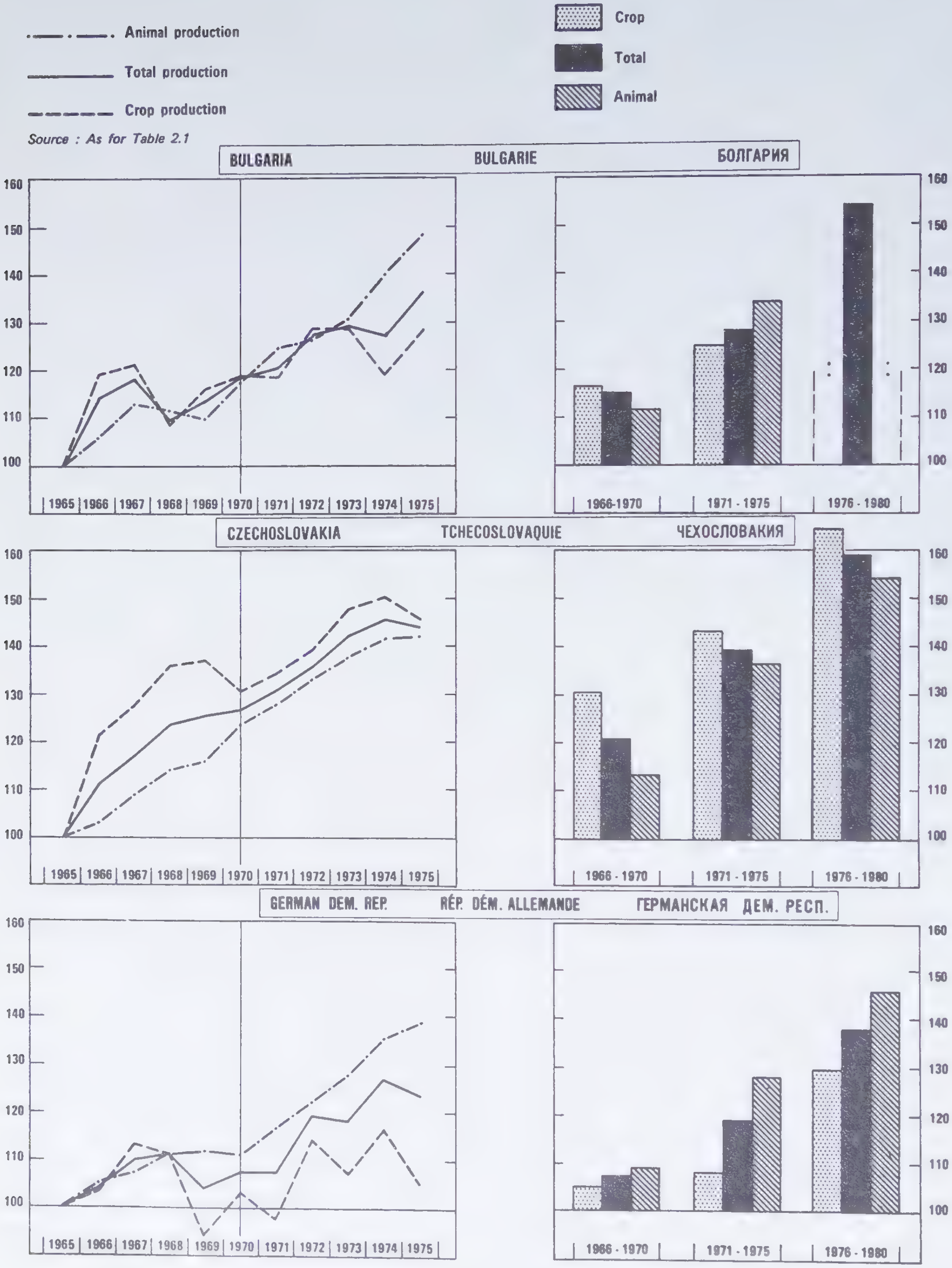
The achievement of long-term objectives in agricultural expansion required fairly far-reaching modifications and adaptations in medium-term and in short-term strategies, and brought about the formulation of new policies for the 1976-1980 period. Changes have taken place in policies relating to sectoral rates of growth. Planned trends are meant to reflect the priority given to the expansion of crop production, and to reverse the profile of sectoral development in the new quinquennium. Except in Bulgaria, and to a lesser degree in Romania, the plans call for an accelerated expansion of crop production: the annual growth rates that have been laid down are between 3 and 4 per cent, exceeding slightly planned rates of global agricultural expansion. Romania is the only country where the expansion of crop production is expected to exceed 5 per cent per annum. On the other hand, expansion rates for livestock production have been set below the rates achieved in the previous five years, and range from 2.5 to 3 per cent in the countries where the plan targets have been released. On the whole, the expected profile of development of the production structure within agriculture should reverse the tendency, very marked during 1971-1975, for the relative weight of crop production to decrease.

Planned trends go in the opposite direction in Bulgaria and Romania, the countries where the share of livestock production is considered to be below the optimum from the point of view of home demand for livestock products and export requirements. Neither Bulgaria nor Romania have given precise targets, but it has been reported that Bulgaria envisages the achievement by 1980 of a 50 per cent share of livestock production in total agricultural output. Such a structural shift will require a very rapid rate of expansion during the period 1976-1980, which should outpace the already high expansion rate of 3.7 per cent achieved for 1971-1975. The one million increase in the number of pigs in 1974 by comparison with 1973 (over 40 per cent) has probably demonstrated the feasibility of such a high expansion rate, but also posed problems of maintenance of such a high number of animals in 1975, a year of declining crop production. Consequently, the achievement of a structural shift in favour of livestock during the period 1976-1980 presupposes an acceleration of livestock expansion consider-

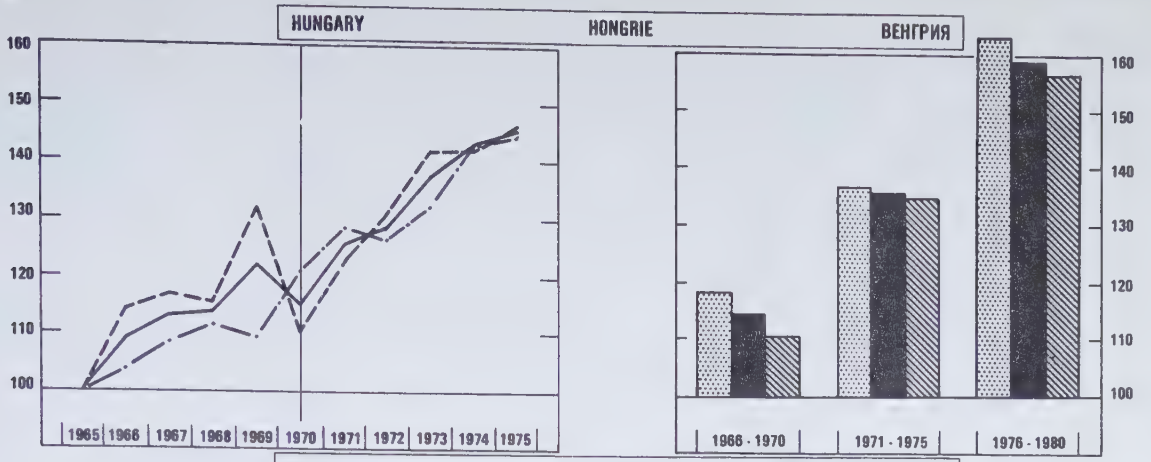
CHART 2.3

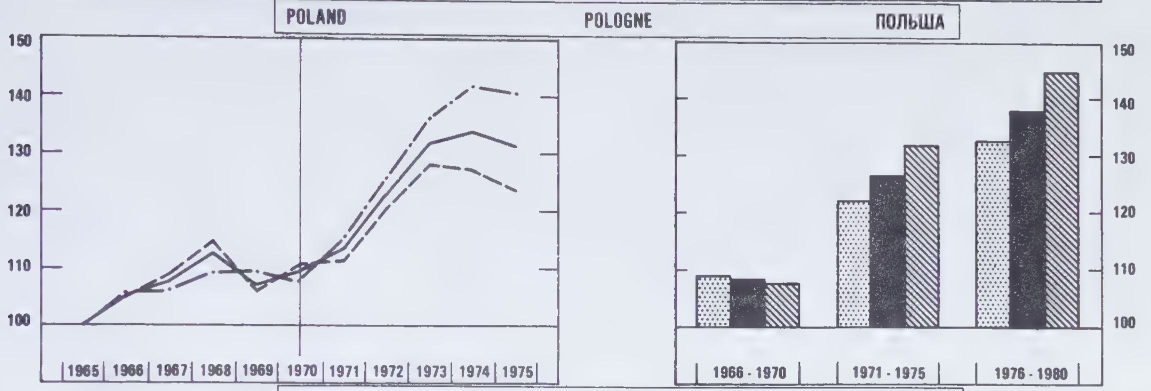
Gross agricultural ouput: total production, crop and animal production

(Indices, 1965 = 100)



Source : As for Table 2.1


HUNGARY
HONGRIE
ВЕНГРИЯ
160
150
140
130
120
110
100
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1966 - 1970
1971 - 1975
1976 - 1980


POLAND
POLOGNE
ПОЛЬША
150
140
130
120
110
100
1965
1966
1967
1968
1969
1970
1971
1972
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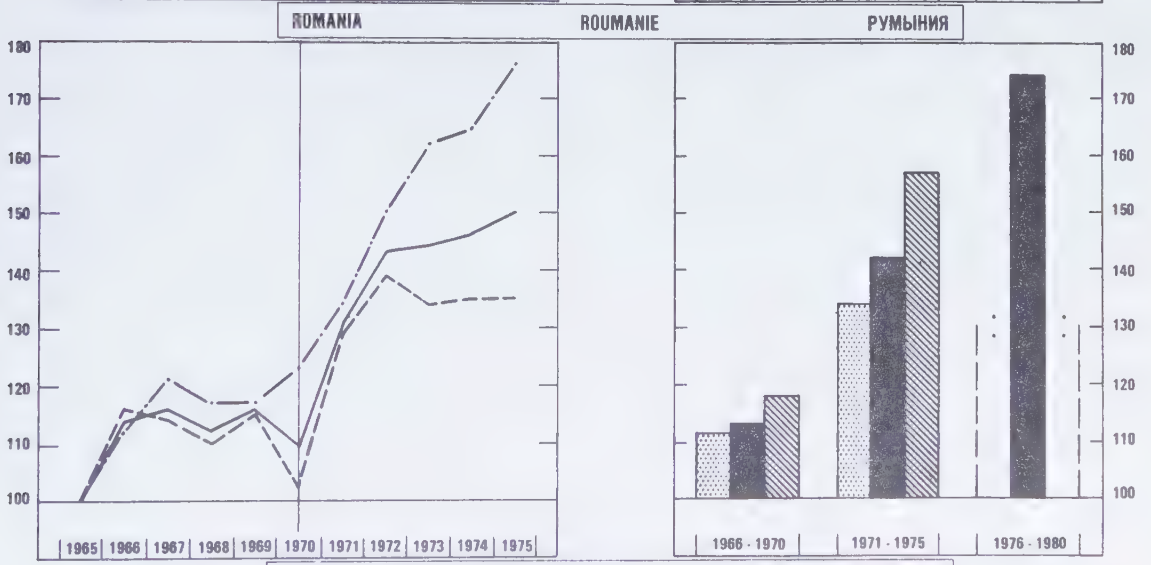
ROMANIA
ROUMANIE
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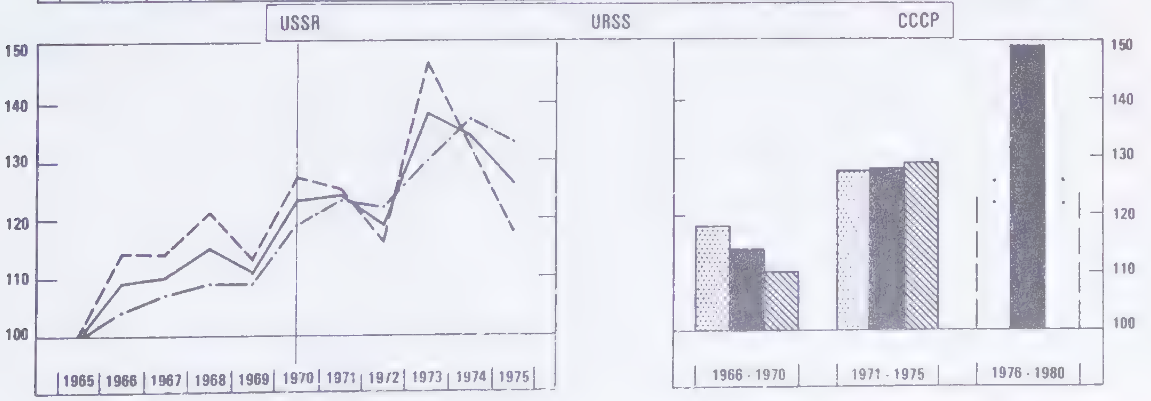
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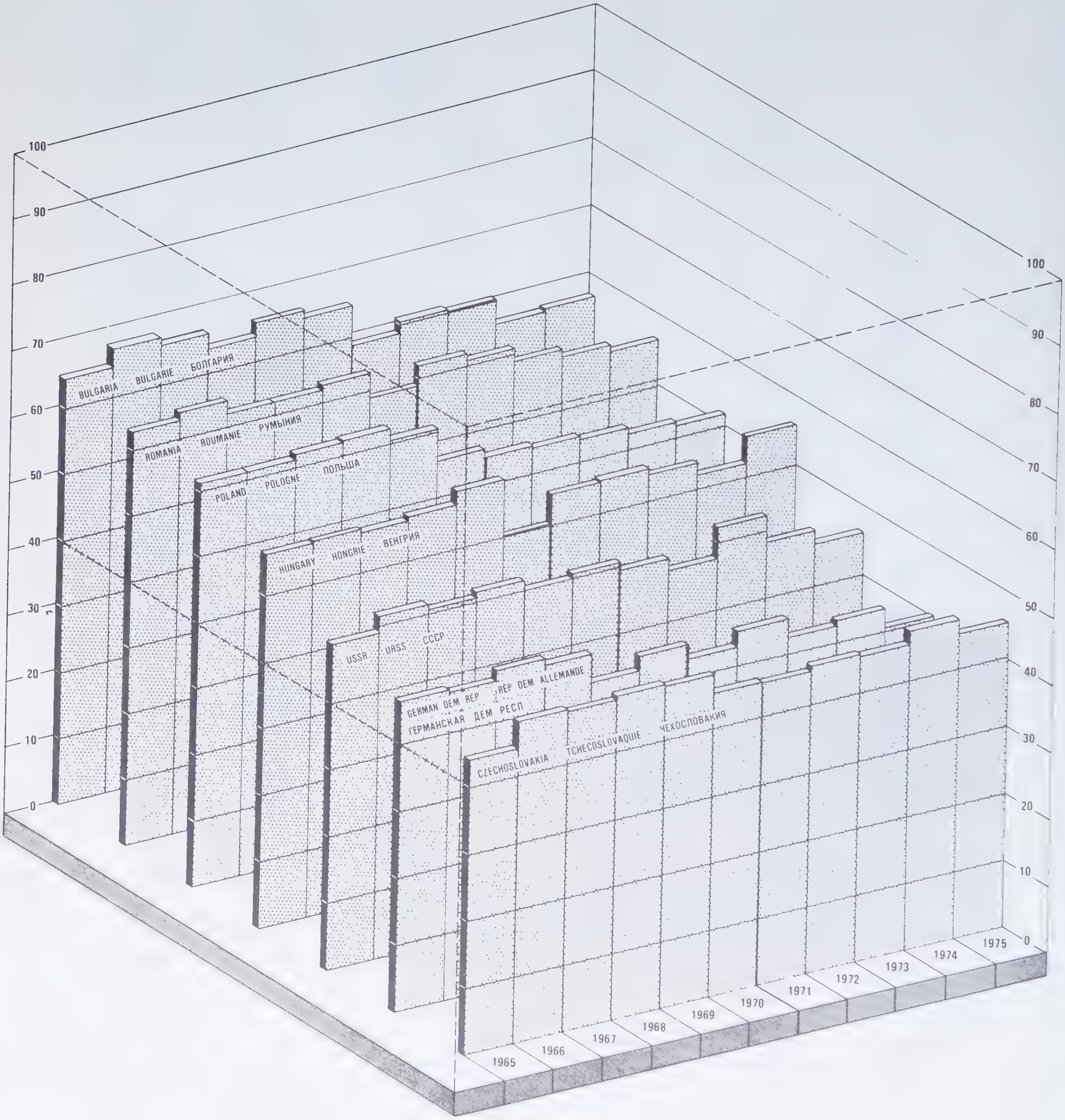
CHART 2.4

Crop production

(Percentage share, total gross agricultural product = 100)



Sources: As for table 2.1.

ably exceeding an average annual rate of 4 per cent. The policy adopted in Romania is based on a more modest degree of planned structural shift. (A livestock ratio of 42 per cent seems to be envisaged for 1980; the corresponding figure for 1971-1975 was 40.5 per cent.) The emphasis in Romania is on a high expansion rate of both crop and animal production. It looks as if the 6 per cent growth rate in animal production achieved in 1971-1975 should be maintained.

In general, then, it seems that the similarity of structural problems in agriculture between the different countries, and also the impact of co-operation and co-ordination of five-year plans within the CMEA framework have narrowed the range of policy options, and have resulted in a relatively high degree of similarity of policies adopted in terms of global and structural targets.

Within the general priority given to crop production, the core of the development programme remains *grain production* (table 2.9). Feed crops, vegetables, fruit and sugar-beet have taken on greater prominence than in the previous five-year period, but have remained, in accordance with global agricultural strategy, less important than grains (table 2.12). A number of special programmes have, however, been worked out for the promotion of aims relating to the expansion of production and the improvement of supplies of these other crops, mainly for home markets.

As mentioned earlier, production targets in crop production have as an ultimate goal the achievement of national *self-sufficiency*, particularly in grains. Self-sufficiency in animal products, especially in meat and meat products, has been achieved in all the east European countries with the exception of the Soviet Union. By 1975, Czechoslovakia had virtually eliminated its trade deficit in meat, and the German Democratic Republic recorded a small export surplus in that year. This strategic task has been most explicitly formulated in the report of the Presidium of the CP of Czechoslovakia: "(the aim is) to achieve in the space of a few years self-sufficiency in grain production and to increase further our over-all self-sufficiency in food production".[42] In countries like Hungary, Bulgaria and Romania, where global self-sufficiency in the food complex has already been achieved, emphasis is on increasing export surpluses and improving supplies to domestic markets. Reference to self-sufficiency in particular crops has also been made: Hungary for instance, has mentioned as a special target the achievement of self-sufficiency in sugar production.

Self-sufficiency as a priority objective has undoubtedly been influenced by balance-of-payments considerations. Heavy imports of grains put an additional strain on balance-of-payments situations already tense because of a rather inelastic demand for imports of capital goods, fuels and raw materials, and to the increasing uncertainty of prospects for exporting manufactured goods to areas outside of the CMEA region. The big item—*agricultural trade in grains*, and in particular feed grains—recorded a relatively modest trade deficit for the region as a whole in 1966-1970 (table 2.10). The trade position of the region deteriorated considerably during the period 1971-1975: large-scale net imports were recorded in the east European countries, taken as a whole, and in the Soviet Union. Although the deficit in 1971-1975 was only about 5.5 per cent of total production (8.6 per cent in eastern Europe and 4.1 per cent in the Soviet Union), its effect on the balance of payments, on performance in domestic production and on consumption cannot be considered as marginal. Compared with the position as it was in the period 1966-1970, when the trade in grains was almost balanced (the deficit was 0.5 per cent, with the Soviet Union as net exporter to the extent of 1.7 per cent, and eastern Europe as net importer of grains to the extent of 6.7 per cent), the situation in the period 1971-1975 shows a marked deterioration.

The trade performance in grains also deteriorated in each individual country of the region (table 2.11), with the exception of Hungary, and to some extent of Czechoslovakia. In the German Democratic Republic and Poland the deficit grew, while in Czechoslovakia it fell but remained at a high absolute level. In the other countries, trade surpluses in the former period were turned into deficits (Soviet Union) or substantially reduced (Bulgaria, Romania).

Looking at the structure of the deficit in grains, feed-grains made up 57 per cent of the total, reflecting strains which existed in all countries because of a lagging behind in the production of feed grains and fodder stuffs in general, strains which were magnified by the accelerated expansion of the livestock sector.

Trade balances in meat and meat products, as computed on the basis of annual averages, remained virtually unchanged throughout the region (see text table below).

Foreign trade in meat and meat products, 1971-1975

(*Annual averages in thousands of tons*)

Country	*Exports*	*Imports*	*Balance*
Bulgaria	73.2	19.5	53.7
Czechoslovakia	25.9	43.5	−17.6
German Democratic Republic	23.0*	38.8	−15.8*
Hungary	182.0	17.6	164.4
Poland	196.8	59.0	137.8
Romania	104.5	21.7	82.8
East European countries	605.4	200.1	405.3
Soviet Union	54.0	302.8	−248.8
Soviet Union and east European countries	659.4	502.9	156.5

Sources: As for table 2.1.

Note : For the German Democratic Republic the figures for exports are taken from the *FAO Trade Yearbook*, vol. 29, p. 28, table 9.

With a total meat output of 23.8 million tons for the entire region in 1971-1975, of which 14 million in the Soviet Union and 9.8 million in eastern Europe, the relative trade position was +0.7 per cent for the whole region, +4 per cent for eastern Europe and −1.8 per cent for the Soviet Union. In per capita terms, the export

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[42] Session of the CC of the CP of Czechoslovakia held in November 1974. See J. Baryl, *op. cit.*, p. 10.

TABLE 2.9

Grains: production and yields

(Annual average output in millions of tons, yields in quintals per hectare; output per head of population in kilograms)

Country and period	*Total grains*		*Percentage share*		*Output per head of population*
	Output	*Yield*	*Bread grains*	*Feed grains*	
Bulgaria					
1966-1970	6.45	27.4	45.8	54.2	770
1971-1975	7.46	33.1	42.1	57.9	865
Plan 1976-1980 ...	9.60				
Czechoslovakia					
1966-1970	7.11	26.6	49.9	50.1	496
1971-1975	9.44	33.9	52.9	47.1	647
Plan 1976-1980 ...	10.6-11.0[a]	41-42[ab]			
German Democratic Republic					
1966-1970	6.99	29.4	53.3	46.7	409
1971-1975	8.76	35.7	52.2	47.8	516
Plan 1976-1980 ...	9.70-10.75	40-41			
Hungary					
1966-1970	8.40	25.4	38.5	61.5	819
1971-1975	11.52	35.0	38.8	61.2	1 103
Plan 1976-1980 ...	14.0[b]				
Poland					
1966-1970	17.37	19.8	67.5	32.5	539
1971-1975	21.24	25.1	62.5	37.5	636
Plan 1976-1980 ...	24.0				
Romania					
1966-1970	12.95	19.4	36.7	63.3	657
1971-1975	14.97	24.1	36.4	63.6	718
Plan 1976-1980 ...	20.0-22.36				
Eastern Europe[c]					
1966-1970	59.27	22.7	50.5	49.5	582
1971-1975	73.39	28.9	48.9	51.1	700
Plan 1976-1980 ...	87.90-91.71				
Soviet Union					
1966-1970	167.56	13.7	61.5	38.5	703
1971-1975	181.55	14.7	55.3	44.7	727
Plan 1976-1980 ...	215.0-220.0				
Byelorussian SSR					
1966-1970	3.55	13.1	36.9	63.1	404
1971-1975	5.54	21.3	40.5	59.5	600
Plan 1976-1980 ...	6.9-7.2				
Ukrainian SSR					
1966-1970	33.36	21.4	52.8	47.2	717
1971-1975	40.01	24.7	52.8	47.2	828
Plan 1976-1980 ...	46.0-48.0				

TABLE 2.9 (*continued*)

Grains: production and yields

(Annual average output in millions of tons, yields in quintals per hectare; output per head of population in kilograms)

Country and period	Total grains		Percentage share		Output per head of population
	Output	Yield	Bread grains	Feed grains	
Soviet Union and Eastern Europe[c]					
1966-1970	226.83	15.3	58.6	41.4	667
1971-1975	254.94	17.1	53.5	46.5	719
Plan 1976-1980	302.6-311.71				
Albania	*(Thousands of tons)*				
1965	290.0	11.2	..	..	155
1970	463.1	17.3	..	..	212
1975	622.8	23.0	..	..	256
Plan 1980	996.5	34.0	..	..	370*

Sources: As for table 2.1.

Note: Bread grains include wheat and rye.

[a] Cereals only.

[b] 1980.

[c] Excluding Albania.

surplus in eastern Europe was about 4 kg of meat and the import surplus in the Soviet Union less than 1 kg. Annual data show a trend to increasing export surpluses in east European countries over the whole period, and increasing import surpluses in the Soviet Union, particularly in 1974 and 1975 (see text table below).

Meat and meat products: trade balances

(Thousands of tons)

	Eastern Europe	Soviet Union	Total for the region
1971	142.9	−189.8	−46.9
1972	300.4	−70.4	230.0
1973	397.9	−53.5	344.4
1974	517.8	−459.2	58.6
1975	667.6	−470.9	196.7
Annual average 1971-1975	405.3	−248.8	156.5

Even in the meat-exporting countries of eastern Europe, strains on home markets for meat and meat products intensified in the end year of the period. In some of them the level of consumption per capita was rather low (55-60 kg in 1975 in Bulgaria and Romania) and in some, such as Poland, increasing home demand for meat, resulting from steeply rising incomes of the population, has remained unsatisfied in spite of a considerable rise in per capita consumption (70.3 kg in 1975).

TARGETS FOR THE 1976-1980 PERIOD

The 1976-1980 plans lay down as a main objective the achievement of greater balance in agricultural development. It seems that the key link in this strategy has been the *grain complex*, with the fodder base (feed grains) as its principal component. The volume of grains allocated for human needs has been, with a few exceptions in some years, at an adequate level.

For Bulgaria, Romania and Hungary, the grain problem can be treated as a problem of maximizing grain output and correcting the balance between bread and feed grains. If the plan targets are fulfilled, Bulgaria and Romania will reach a level of production of one ton of grain per capita, an amount considered as fully adequate to satisfy domestic needs and allow for an export surplus. (At present approximately 750-800 kg of grains per capita can be considered as the level of production which secures a balanced trade in grains for these countries.) Hungary plans to reach a level of around 1.3 tons per capita, which will allow her to remain the biggest grain producer and exporter in relative terms in the region.

In Czechoslovakia, the objective of self-sufficiency in grains is rather ambitious, and will not be achievable unless norms for domestic consumption of feed grains are considerably reduced. The trade deficit in per capita terms was reduced from 113 kg in 1966-1970 to 98 kg in 1971-1975. Taken together with domestic production of grain, this makes a level of apparent consumption of about 750 kg per annum in the period 1971-1975. The level of production expected for 1976-1980, based on a yield of 41-42 q/ha, might provide a per capita grain output of around 700-720 kg, which is short by about half a million tons of the country's global needs.

In the German Democratic Republic, the objective is to minimize the trade deficit in grains. The deficit on

TABLE 2.10

Grains: foreign trade

(Annual averages in thousands of tons)

	Total grains			*Bread grains*			*Feed grains*		
Country and period	*Export*	*Import*	*Balance*	*Export*	*Import*	*Balance*	*Export*	*Import*	*Balance*
Eastern Europe and Soviet Union									
1966-1970	8 057	9 261	−1 204	6 287	7 028	−741	1 770	2 233	−463
1971-1975	8 307	22 100	−13 793	6 430	12 269	−5 839	1 877	9 831	−7 954
Eastern Europe									
1966-1970	2 422	6 394	−3 972	1 397	4 501	−3 104	1 025	1 893	−868
1971-1975	2 583	8 912	−6 329	1 566	4 360	−2 794	1 017	4 552	−3 535
Soviet Union									
1966-1970	5 635	2 867	2 768	4 890	2 527	2 363	745	340	405
1971-1975	5 724	13 188	−7 464	4 864	7 909	−3 045	860	5 279	−4 419

Sources: As for table 2.1.

Note: Bread grains include wheat only for Bulgaria, Hungary and Romania, and wheat and rye for all other countries. Figures for feed grains are calculated as the difference between total grains and bread grains.

a per capita basis rose from around 120 kg in 1966-1970 to almost 190 kg in 1971-1975, which was about 37 per cent of domestic supplies, with apparent consumption amounting to about 700 kg per annum. The expected volume of grain production in 1976-1980, based on a high 40-41 q/ha yield, will provide per capita supplies at a level slightly higher than 600 kg. The expected average annual deficit may be between 1.6 and 1.7 million tons, i.e. about one half of the 1971-1975 deficit.

Poland has been another great net importer of grains in eastern Europe, with a per capita deficit which increased from 60 kg in 1966-1970 to 98 kg in 1971-1975. Apparent consumption per capita exceeded 730 kg in the latter period. The targets for 1976-1980, if reached, will provide for a per capita level of production of 680-700 kg of grains. The domestic grain market will be short of 1.3 to 1.5 million tons annually, if all expected quantities are realized, and if substantial changes in animal production are not envisaged. Although below that of 1971-1975, the expected rate of expansion of animal production for 1976-1980 is envisaged at a rate of 2.5-3.0 per cent and will probably step up the demand for grains. The five-year agreement with the United States of America for an annual volume of 2.5 million tons of grain imports in the period up to 1980 might indicate that the grain deficit of more than 10 per cent in relation to domestic output has been incorporated into Polish development strategy for agriculture.

The biggest producer of grains in the region is the Soviet Union. Its share in the total grain production of the region decreased from 74 per cent in the period 1966-1970 to something more than 71 per cent in the period 1971-1975. On the basis of production targets it seems that the Soviet Union should maintain its relative share of 71 per cent in the period 1976-1980.

The 1976-1980 target for grain production in that country is about 12 per cent higher than the annual average recorded for 1971-1975. This pre-supposes an increase in yield per hectare from 14.7 to 16.8-17.2 q/ha. Apparent consumption per capita in the period 1971-1975 was about 760 kg per annum (727 kg of domestic supplies and 30 kg of imported grains), which could not be considered as a normal level. The expected level of production per capita in the period 1976-1980 might be around 820-850 kg per annum, which would certainly allow for a higher level of domestic consumption and a surplus of between 5 and 12 million tons.

As is evident from past performance, Soviet grain production depends to a great extent on climatic conditions. This dependence has been defined in quantitative terms in an equation published in 1972 and elaborated for long-term forecasts of agricultural development.[43] According to this equation, agricultural gross output is a function of two factors—the index of inputs of material and human resources, and the index of the climatic situation. The long-term forecast estimated the index of climatic conditions for 1975 at a level of 92 and for 1976 at 105. It was assumed that of the following three years (1977-1979) two years might suffer from relatively unfavourable weather conditions. If the forecasts prove to be true, Soviet agriculture will again undergo annual fluctuations. The degree of fulfilment of planned targets will depend on the amplitude of fluctuations in grain production. These were exceptionally high in 1971-1975, amounting to 82.5 million tons of grain or 45.4 per cent of the annual average volume in this period. Past and estimated future fluctuations are as follows:

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[43] The equation was presented at the third all-Union Conference on the application of mathematical statistics to agricultural economics. Quoted in A. Brylev, *op. cit.*, p. 101.

Annual fluctuations in grain production

Period	Annual average	Minimum	Maximum	Amplitude of fluctuations	
	(Millions of tons)				As percentage of annual average
1961-1965	130.3	107.3	152.1	44.8	34.1
1966-1970	167.6	147.9	186.7	38.8	23.2
1971-1975	181.5	140.1	222.5	82.4	45.4
1976-1980	217.5[a]	192.3	242.7	50.4	23.2*

Source: For 1961-1970, V. Dmitriev, "Amelioration — a key question in the building up of a stable level of agricultural production", in *Planovoe Khozyaistvo*, No. 10, 1975, p. 55.

Note: Data for 1971-1975 based on national statistics and for 1976-1980 estimated by the secretariat based on the 1966-1970 indicator of intensity of annual fluctuations.

[a] Middle of the range.

TABLE 2.11

Grains: trade balances

(*Annual averages in thousands of tons; Export surplus* (+), *Import surplus* (—))

Country and period	Total grains	Bread grains	Feed grains
Bulgaria			
1966-1970	307	141	166
1971-1975	96	195	–99
Czechoslovakia			
1966-1970	–1 616	–1 271	–345
1971-1975	–1 422	–937	–485
German Democratic Republic			
1966-1970	–2 109	–1 470	–639
1971-1975	–3 206	–1 577	–1 629
Hungary			
1966-1970	18	15	3
1971-1975	536	497	39
Poland			
1966-1970	–1 935	–1 266	–669
1971-1975	–3 255	–1 552	–1 703
Romania			
1966-1970	1 391	768	623
1971-1975	922	580	342
Eastern Europe			
1966-1970	–3 972	–3 104	–868
1971-1975	–6 329	–2 794	–3 535
Soviet Union			
1966-1970	2 768	2 363	405
1971-1975	–7 464	–3 045	–4 419
Total area			
1966-1970	–1 204	–741	–463
1971-1975	–13 793	–5 839	–7 954

Sources and notes: As for table 2.10.

TABLE 2.12

Production and yields of non-grain crops: root crops, industrial crops, fruit and vegetables

(Annual averages; output in thousands of tons, yields in quintals per hectare)

Country and period	Potatoes		Sugar-beet		Oil seeds		Output of vegetables	Output of fruit
	Output	Yield	Output	Yield	Output	Yield		
Bulgaria								
1966-1970	380	114	1 860	323	466	16.6	1 541	2 412
1971-1975	355	118	1 711	293	475	16.7	1 577	2 126
Czechoslovakia								
1966-1970	5 676	151	6 913	358	80	13.5	1 183	656
1971-1975	4 571	153	6 867	346	125	17.8	1 078	517
Plan 1976-1980				400-415				
German Democratic Republic								
1966-1970	12 283	185	6 009	312	225	19.1	1 094	667
1971-1975	10 806	171	5 496	277	275	22.0	1 141	571
Plan 1976-1980		200-225		350-380				
Hungary								
1966-1970	2 044	105	3 175	325	138	10.5	1 564	1 994
1971-1975	1 570	117	3 097	330	231	12.1	1 631	2 200
Poland								
1966-1970	47 906	176	13 601	324	544	17.5	3 780	1 238
1971-1975	47 083	177	13 848	309	573	17.9	3 764	1 151
Romania								
1966-1970	2 877	93	3 513	192	834	12.5	2 087	2 311
1971-1975	3 387	114	4 758	231	1 054	13.1	2 675	2 299
Plan 1976-1980	4 600-4 860		8 600-9 350					
Soviet Union								
1966-1970	94 813	115	81 118	228	7 180	11.2	19 472	9 710
1971-1975	89 782	113	75 984	217	6 694	11.0	22 974	12 381
Plan 1976-1980			95 000-98 000					
Byelorussian SSR								
1966-1970	13 714	140	1 039	214	..	..	790	..
1971-1975	12 996	142	1 107	225	..	..	753	411
Plan 1976-1980			1 300					
Ukrainian SSR								
1966-1970	20 294	100	46 731	267	2 830	16.4	5 585	..
1971-1975	21 019	111	45 957	268	2 712	15.8	6 577	3 653
Plan 1976-1980					3 000-3 100			

Sources: As for table 2.1.

Supposing that the annual fluctuations remain within the limits of 1966-1970 (23.2 per cent), fulfilment of planned targets in grain might be achieved if the minimum annual volume is not below 192 million tons, with a maximum output of about 243 million tons. Although the plan envisages the expansion of the area of arable land by 3 million hectares, the assumption is that the sown area under grain may remain at the 1975 level (128 million hectares). The yields for 1976-1980 would be accordingly:

	Quintals per hectare
Annual average	16.8-17.2
Maximum	19.0
Minimum	15.0

In other words, the plan target for grain production might be achieved if the average yield were to rise by 2.1 to 2.5 q/ha (average yield for 1971-1975 = 14.7 q/ha). This figure is modest when compared to planned increases in over-all yields in the east European countries.

Targets in *livestock production* demonstrate the priority given to the re-building and expansion of animal herds in the Soviet Union. (Tables 2.13 and 2.14.) It has been estimated that global domestic consumption of grain, which allows for normal non-final consumption, was 200 million tons in 1975. Half of that amount was allocated to human consumption (35.40 million tons), seeds, industrial processing, or corresponded to losses of different types (transportation, storage, moisture); the other half (100 million tons) was consumed in the livestock sector. The planned annual increase in livestock production of about 3 per cent may require an annual increase in consumption of feedstuffs of about 3 per cent, supposing that the efficiency coefficients for livestock feed remain unchanged. In terms of demand for grain in the livestock sector, a volume of 109 million tons might be sufficient to provide a feed-livestock balance.

Albania also envisages the achievement of self-sufficiency in bread grains as the priority objective in agricultural expansion during the period 1976-1980. Bread grains include largely wheat and maize (same proportion) and a small quantity of barley. Any analysis of Albanian agricultural policy must proceed on the basis of a knowledge of the special conditions prevailing. The country has a very low level of natural agricultural resources per head of the population. Only 42.5 per cent of its total area is agricultural land, which means less than 0.6 ha per capita in 1970. Due to the high rate of natural increase of the population (2.3 per cent in 1975) and despite modest net additions to over-all land stock, arable land per capita has a declining tendency, and might fall to 0.21 ha by 1980. On the other hand, relatively low yield levels (17.3 q/ha in 1970 and 23.0 q/ha in 1975) do not permit a high level of grain output per capita (212 kg in 1970 and 256 kg in 1975). The 1976-1980 plan envisages an increase in production of bread grains of 60 per cent in 1980 as compared with 1975, or a grain harvest by the end of the five-year plan approaching 1 million tons. In per capita terms the amount available for domestic use might be around 370 kg, a quantity which can hardly be treated as sufficient for the achievement of self-sufficiency. The livestock sector is supposed to expand at the same rate as in the 1971-1975 period, which might lead to a further decrease in its relative share as follows: 1965—35.2, 1975—29.0 per cent, 1980—28.3 per cent. Meat production is planned to increase by 7 per cent annually, which might raise the level of per capita production of meat from 29 kg in 1975 to 37 kg by 1980. Priority is given to non-grain fodder production (special teams are to be organized in every socialist farm to manage feedstuffs), vegetables and fruit. In the livestock sector past policies of eliminating oxen as draught animals and reducing numbers of small hoofed animals are to be reversed.

(v) Agricultural purchase prices

Purchase prices of agricultural products have been revised upwards in the east European countries and the Soviet Union on several occasions during the decade under review, most frequently with respect to animal products. The global effect of these changes on the level of farm purchase prices has been rather considerable in some countries, but systematic statistical evidence is not available. Price indices for agricultural products (producer prices or purchase prices) have not been released in the regular statistical publications, except in Czechoslovakia and Hungary. The global impact of price increases can, however, be demonstrated through implicit price deflators (IPD) of gross and net agricultural products (table 1.8). Systematic data are available for five countries.[44] The IPDs on the basis of gross output exceeded an average annual increase of 2 per cent in four countries during the period 1971-1975. Only Czechoslovakia kept farm prices virtually stable during this period, with an average annual increase of only 0.4 per cent. During the period 1966-1970 the increase on an average annual basis in the gross IPD was about 2 per cent. Whereas Czechoslovakia experienced very modest farm price changes, Poland (1971-1975) and Hungary (1966-1970) recorded a rate exceeding an annual average of 5 per cent, a rate implying fairly large increases in purchase prices for some farm products in these countries.

Such developments in farm purchase prices need some clarification with respect to their economic meaning. They are the result of decisions made by policy makers. They are motivated basically by the intention of bringing farm prices closer to "economic" prices, i.e. to relate them more consistently to costs of production. Price increases are designed to correct inherited cost structures and are not an isolated policy measure. Price policy for

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[44] The indices of state procurement prices in Czechoslovakia and Hungary are very close to the gross IPDs. They are as follows:

	1970/65	*1975/70*	*1975/65*
Czechoslovakia [a]	108.0	103.6	111.8
Hungary	132.8	114.9	152.6

Source: National statistics.

[a] 1967 as a base year.

Information on increasing agricultural purchase prices have been reported in the press from time to time in the German Democratic Republic and Romania, and this supports the hypothesis that IPDs in these countries have behaved in a similar way to those of the region as a whole.

TABLE 2.13

Livestock numbers

(In thousands)

Country and period	*Cattle*	of which: *Cows*	*Pigs*	*Sheep and goats*
Bulgaria				
1965	1 577	643	2 408	10 748
1970	1 353	628	2 369	10 013
1975	1 725	703	3 889	10 335
Czechoslovakia				
1965	4 389	1 948	5 544	1 135
1970	4 288	1 881	5 530	1 266
1975	4 555	1 903	6 683	926
German Democratic Republic				
1965	4 762	2 169	8 878	2 265
1970	5 190	2 163	9 684	1 733
1975	5 532	2 155	11 501	1 936
Hungary				
1965	1 920	782	6 590	2 535
1970	1 912	763	7 311	2 396
1975	1 904	760	6 953	2 054
Poland				
1965	9 480	5 775	14 367	2 777
1970	10 220	5 829	13 863	2 788
1975	12 764	6 138	21 647	3 218
Romania				
1965	4 935	2 328	5 365	13 932
1970	5 216	2 625	6 359	14 354
1975	6 126	3 028	8 813	14 310
Plan 1980	7 500	3 710	12 000-13 000	19 000-19 550
Soviet Union				
1965	93 436	39 347	59 576	135 316
1970	99 225	39 762	67 483	143 421
1975	111 034	41 917	57 899	147 091
Byelorussian SSR				
1965	4 704	2 331	3 688	846
1970	5 383	2 490	4 004	692
1975	6 406	2 680	3 999	565
Ukrainian SSR				
1965	21 324	8 484	18 920	9 342
1970	21 352	8 563	20 746	8 971
1975	24 180	8 978	16 847	9 115

Sources: As for table 2.1.

TABLE 2.14

Livestock output

(Annual average output of meat and milk in thousands of tons; eggs in millions)

Country and period	*Meat*	*Milk*	*Eggs*
Bulgaria			
1966-1970	497	1 582	1 587
1971-1975	574	1 728	1 721
Czechoslovakia		[a]	
1966-1970	1 258	4 385	3 346
1971-1975	1 533	5 129	4 267
German Democratic Republic			
1966-1970	1 245	7 036	4 114
1971-1975	1 511	7 715	4 691
Hungary		[a]	
1966-1970	1 272	1 845	2 787
1971-1975	1 644	1 856	3 521
Poland			
1966-1970	2 165	14 688	6 511
1971-1975	2 714	16 113	7 575
Romania			
1966-1970	1 337	3 875	3 375
1971-1975	1 853	4 233	4 644
Plan 1980	2 500-2 687	5 800-6 220	6 000-6 500
Soviet Union			
1966-1970	11 583	80 553	35 840
1971-1975	14 004	87 446	51 427
Plan 1976-1980	15 000-15 600	94 000-96 000	58 000-61 000
Byelorussian SSR			
1966-1970	642	4 907	1 437
1971-1975	789	5 720	2 289
Plan 1976-1980	900	6 300	. .
Ukrainian SSR			
1966-1970	2 677	17 937	8 293
1971-1975	3 280	20 360	11 215
Plan 1976-1980	3 400-3 600	21 900	12 800

Sources: As for table 2.1.

Note: Meat is in carcase weight except for Czechoslovakia, Hungary and Romania.

[a] In millions of litres.

farm products is largely determined by policies on incomes, aiming at evening-up the living conditions of people employed in agriculture and those in non-agricultural activities, and by the application in farming of the *khozraschet* principle, which requires close association between costs of production and price setting. In brief, price increases reflect the policy objective of improving the economic position (terms of trade) of the agricultural sector in relation to the rest of the economy.[45]

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[45] In the field of farm purchase prices, four major reforms have taken place in the Soviet Union: in 1953, 1958, 1965 and 1970. If 1973 farm purchase prices for products sold by collective farms to state procurement organizations are compared with those of 1952, they can be seen to have risen for all products by about six times, for crop products by 4 times, and for livestock products by 11 times. The index of purchase prices for cattle recorded a 30-fold increase. See N. Pozhuev, "The development of the system of purchase prices for agricultural products", in *Ekonomicheskie Nauki*, No. 8, 1976, pp. 55 and 56.

The impact on these trends of factors of an inflationary character cannot be neglected for some economies, but they are of minor importance.

A comparison of changes in the IPDs based on net output with those based on gross output provide some information on the factors influencing price increases of farm products. Only in one case (Czechoslovakia, 1971-1975) did changes in gross IPDs outpace the respective changes in net IPDs. This can be accounted for completely by the impact of increased prices of material inputs—the net IPD remained virtually unchanged at 99.6, and the IPD for industrial output recorded a slight increase during the same period. In no other instance can the impact of increased prices of material inputs be clearly singled out. Greater changes in the net IPD indices as compared with the respective changes in the gross IPD indices may reflect a combination of increases in the prices of material inputs and increases in the unit value of net output of agricultural products. In two countries, Bulgaria and the Soviet Union, the IPDs for industrial output recorded a decline during 1971-1975, and the prices of farm material inputs of an industrial origin must have at least remained unchanged, if they did not fall. Thus the increase in IPDs may be fully imputable to farm income increases. In Hungary and Poland, the income effect of price increases of farm products must have been much less pronounced than the effect of increased prices of material inputs: the IPDs for industrial products have risen, and this may explain most of the fairly small difference—about 2 percentage points—between the two IPDs for agriculture.

In all countries statistical data on remuneration in agriculture show considerable annual increases, in several countries even outrunning the rise in productivity (table 5.2). In Poland, for instance, a 4.1 per cent increase in labour productivity in farming was accompanied by a 12.8 per cent increase in money income of farmers in the period 1971-1975. It has been reported that in the Soviet Union wage and remuneration increases in farming have more than cancelled out the effect of reduced unit labour inputs on labour costs of agricultural products.[46] In Hungary too, the income effect of price policy for farm products has been stressed. The government programme for promoting cattle-breeding provided for an increase in producer prices allowing for an 8 per cent rate of profit on productive assets and a 15 per cent profit rate on prime costs in the cattle-breeding branch.[47] Between 1965 and 1975 a 67 per cent increase in the index of producer prices for livestock and livestock products was recorded in Hungary.

The effect of price changes on farm profitability cannot be demonstrated because of the lack of relevant statistics in most countries. The one piece of information available on changes in profitability in industry and socialist agriculture in the Soviet Union after the 1965 price reform does not indicate any improvement in global profit rates for socialist farms between 1965 and 1970 in spite of the fact that 1970 was a good agricultural year. Whereas profitability (profit as a percentage of the value of fixed productive assets and material circulating assets) rose in industry as a whole from 13 per cent in 1965 to 21.5 per cent in 1970, and in food processing from 24.4 to 27.6 per cent, it remained virtually unchanged in agriculture, with corresponding figures of 11.1 and 11.5 per cent respectively.[48] Another indicator of relatively low farm profitability could be the amount of subsidies paid directly to agriculture to finance differences between purchase prices and production costs in agriculture. The figure reported by the Hungarian Minister of Agriculture in September 1975 demonstrates the size of the problem. In 1974, state subsidies in Hungary amounted to 1,500 forints per hectare, which adds up to about 10 billion forints or more than 50 per cent of capital investment spending in agriculture in that year.

Farm purchase prices are institutionally (and economically) separated from consumer prices for food products. In most countries, increases in purchase prices do not affect corresponding retail trade prices. The price lag has had a tendency to grow larger, and this has increased the importance of subsidies. Information about the level of subsidization is rather scarce and fragmentary, but two recent references are available which are very illustrative in this regard. In 1975, state subsidies for maintaining stable retail prices for food products in Poland came to 100 billion zlotys, an amount 40 per cent higher than agricultural investment spending in that year. State subsidies paid for the maintenance of stable retail prices of meat and milk products in the Soviet Union in the same year amounted to 19 billion roubles, or almost 80 per cent of agricultural investment spending.[49]

The principle of *uniform farm purchase prices* was introduced in all the countries of the region during the 1960s. The old system of multiple price criteria for the same agricultural products was abandoned. State and collective farms, and also producers on individual plots and private farms, now face the same economic criteria for the evaluation of their output. Nevertheless, the effect of price increases differs from one socio-economic sector of agricultural production to another. The data on indices of farm purchase prices in the Soviet Union during the 1964-1973 period demonstrate the extent of changes and also the variations in the incidence of these changes on the different sectors (see text table below).

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[46] V. Popov, *op.cit.*, p. 84. During the period 1966-1974 labour productivity in terms of man-hours was stepped up by 55 per cent in collective farms and 57 per cent in state farms. Labour remuneration rose by 69 per cent. In spite of declining labour inputs, unit labour costs were not reduced.

[47] F. Fekete, "Development in livestock production and tendencies in supply and demand in the European socialist countries", in *Acta Oeconomica*, No. 2, Vol. 13, 1974, p. 211.

[48] L. Kassirov, "Rent relationships and the development of economic methods in management", in *Ekonomicheskie Nauki*, No. 5, 1974, p. 57.

[49] N. Glushkov, "The economy and prices", in *Pravda*, 8 February 1977. The Chairman of the USSR State Committee for Prices indicated the degree of price distortion by stating that retail prices for beef (first category, central regions) was 2 roubles per kg, and of butter 3.60 roubles, whereas corresponding costs of production and distribution amounted, on average, to 3.50 and more than 5 roubles per kg respectively.

Soviet Union: changes in farm purchase prices

(Indices, 1964 = 100)

	Total farm production	Crop production	Animal production
All sectors			
1965	120	122	119
1970	151	136	160
1973	154	140	163
Collective farms			
1965	114	113	121
1970	139	121	162
1973	143	125	166
State farms			
1965	123	132	118
1970	163	168	161
1973	170	174	168
Individual plots			
1965	102	95	103
1970	143	100	148
1973	148	101	154

Source: N. Pozhuev, *op. cit.*, pp. 57-59. The indices were computed by the author.

The indices demonstrate larger increases in prices for animal products than for crops, for total agriculture and for the collective sector. Inter-sectoral differences in indices are rather large for total agricultural production, but the spread is even larger in crop production. It seems that this reflects essentially differences in crop product mix between the different sectors. In livestock production, where the product mix is fairly similar in all sectors, the changes in indices were largely of the same order.

The principle of uniform purchase prices for farm products has been qualified on the grounds of regional differences. This issue is of a great prominence in the Soviet Union. The Soviet Union is divided into 40 natural economic zones and over 500 micro-regions, having marked differences which "cannot be ignored in agricultural management practice".[50] When a nation-wide market for agricultural products does not exist, and when purchase plans are a kind of regulator of the composition and level of agricultural production, zonal differences are of decisive importance in agricultural production. They are also important in equalizing income levels of farms in different zones. *Zonal differentiation* was introduced in 1958 for cereals. Since that time the principle has been applied in setting prices of other products (livestock products 1970, potatoes 1970). The number of zones has also tended to rise; the number of price zones for milk—initially 42—has been enlarged to 70, and that for cattle from 41 to 57. Unit costs per quintal of milk varied by zones in the RSFSR on average between 16.3 and 22.8 roubles in the period 1966-1970.[51]

Inter-country differences in farm purchase prices and differences in prices relating to food products in foreign trade make any calculation of the efficiency of export-import transactions very complicated. The *contract prices* used in the CMEA trade in agricultural products are very often below home prices. On the other hand, CMEA contract prices are often above the corresponding prices on world markets. The criteria for setting contract prices are not uniform. Countries exporting farm products very often propose EEC internal agricultural prices as a basis for intra-CMEA contract prices (these are considerably higher than the corresponding world market prices). Countries importing farm products advocate the principle of world market prices.[52] The issue remains open, and the subject of discussion within the CMEA framework.

(vi) Concentration and specialization in agriculture, and the formation of agro-industrial complexes

In 1965, in all the countries of the region except Poland, agricultural production was largely organized and managed by state and collective farms. Shares of the socialist sector in agricultural gross output and in agricultural land were between 90 and 100 per cent.[53] The socialization of agriculture involved essential developments on the organizational and material-technical side; large-scale farming became the leading and predominant type of agricultural organization. This institutional set-up provided a basis for the accelerated industrialization of agriculture; new types of factor inputs were applied in agriculture and simultaneously the role of traditionally agricultural factors, of land and labour, changed, quantitatively and qualitatively. Whereas the process of organizational re-structuring reached the final stage by 1965 (in some countries considerably earlier), the process of industrialization has progressed at a much slower pace. Within the global development strategies of the 1950s and early 1960s, the expansion of agriculture and also of related supplying and processing industries were not ranked high among development priorities. (Among the few exceptions could be mentioned agricultural engineering in the Soviet Union and Poland, and chemical fertilizers in all countries between 1961 and 1965. Even in these productive lines, however, deliveries were far below the level required by an industrially developed agriculture.)

Between 1950 and 1965, structural interrelationships between agriculture on the one hand and supplying and processing industries on the other changed rather slowly in most countries. (In Romania the share of agriculture increased.) A relatively low share of the industrial

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[50] *Pravda*, 19 May 1976.

[51] Yu. Orlikovskaya. "Differential rent and forms of its realization in the production of collective farms", in *Ekonomicheskie Nauki*, No. 1, 1975, p. 50.

[52] Yu. Kormnov and B. Frumkin, *op. cit.*, pp. 89-90.

[53] Percentage share of socialist sector[a] in agriculture in 1975:

	Gross output	Agricultural land
Bulgaria	99.7	99.5
Czechoslovakia	94.6	90.0
German Democratic Republic . . .	89.8	93.9
Hungary	96.7	97.1
Poland	12.9	15.2
Romania	91.0	91.4
Soviet Union	99.95	100.0

Source: CMEA Statistical Yearbook 1976.

[a] Personal plots included.

branches of the food processing complex was typical for almost all countries in 1965 (table 2.15). Only in the German Democratic Republic and Czechoslovakia was the share of processing and supplying industries in the gross output of the total agro-industrial complex more than 50 per cent. As far as employment is concerned, it was only in these same two countries that agriculture had a share of less than 70 per cent of the total. All other countries recorded a share exceeding 80 per cent. In this latter group of countries employment in the supplying industries (the basis for the industrialization of agricultural production) was between 1 and 3 per cent of total employment in the agro-industrial complex.

The strategies of agricultural development adopted since 1965 have been based on a radical change of attitude towards agriculture and, in broader terms, towards the food complex or agro-industrial complex. The need for accelerated integration of agriculture into the national economy has been one of the prerequisites for the implementation of strategies aiming at sustained and balanced over-all expansion at rates close to historical, long-term rates of growth. The accelerated industrialization of agricultural production has been a key component in developmental strategies. This has meant not only high priority for agricultural expansion but an even more accelerated expansion of the supplying industries, and of activities providing services to agriculture. Old supplying industries, such as agricultural engineering and chemicals, have to be reconstructed and modernized, and new ones, such as the micro-biological industry, have to be built from scratch. Statistical evidence on the pace of these changes, and on the extent of shifts in the pattern of agro-industrial development in eastern Europe and the Soviet Union, is not available from published statistical documents for all countries and for the whole period 1965-1975. However, data compiled from professional sources show the structure of the agro-industrial complex in Bulgaria (1970), Poland (1975) and the Soviet Union (1972). (See table 2.16.) Account must be taken of the uncertain comparability of these data with those in the previous tables. Nevertheless, the changes would appear to have been considerable, and this indicates the high priority on accelerated development in the supplying industries.

Data based on input-output tables confirm the increasing importance of the processing industries in the utilization of agricultural products in Poland and, even more so, in the Soviet Union (table 2.17). The data for Czechoslovakia show a relative decline in the share of agricultural products allocated for use in agriculture. The time span between the two sets of the data for Hungary is too short to demonstrate any significant shifts with respect to industrial processing or agricultural use of agricultural products. What is certain from the partial statistical information available is that the process of industrialization of agriculture has accelerated since 1965, and that significant changes in the pattern of the agro-industrial complex had already taken place in all the countries of the region by the beginning of the 1970s. The reliability of this generalization can be indirectly substantiated by reference to the developments in factor supplying industries described earlier in this section.

The growing importance of the complex approach in agriculture is further underlined by the fact that during the past quinquennium (1971-1975) one of the most important innovations in national planning and management has taken place in this field. Special development programmes relating to the food complex have been worked out and approved by the highest political and state bodies. In Poland a long-term programme for the period up to 1990 was approved in November 1974.[54] In Czechoslovakia the CC of the CPCZ adopted "Principles of further development of concentration and specialization in agricultural production and of integrated ties with the food industry in the 6th five-year plan period" in October 1975.[55] The investment targets in the five-year plans for 1976-1980 are specifically for the agro-industrial complex (Bulgaria) or the food economy (the German Democratic Republic, Hungary, Poland). In Bulgaria, the Central Committee of the BCP and the Council of Ministers issued a special decree in June 1972 relating to the "consecutive implementation of the economic mechanism in agriculture", i.e. to the adaptation of agriculture to the new planning and management system.

Changes in *organizational structures* have taken place in all countries. State and collective farms have undergone continuous reorganization with a view to achieving a size, in terms of arable land, which will be close to the optimum. In most countries reference has been made to 3,000 to 5,000 hectares of arable land as the optimum size, given the modern industrial technologies that can be applied in farming. The data on the number of state and collective farms and average size of sown area by farms in table 2.18 demonstrate developments and the pace of reorganization.[56]

The formation of large farms has also speeded up the process of specialization of agricultural production and, to some extent, the process of optimization of regional structures of crop production, but differences between the countries are considerable. As early as the beginning of 1971, for instance, more than 85 per cent of all socialist farms in the German Democratic Republic were included in the system of so-called horizontal inter-farm specialization and co-operation. In Bulgaria, on the other hand, multi-branch farms were still dominant in 1970: one farm cultivated on an average 30 to 50 crops, and all farms bred cattle, 99 per cent sheep, and 53 per cent cattle, sheep and poultry simultaneously.[57] The process of specialization has been speeded up by the formation of inter-farm associations. In the Soviet Union their number rose from 4,554 in 1970 to 6,327

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[54] *Nowe Drogi*, No. 10, 1974.

[55] J. Hubaček, "Organizational and production reconstruction of Czechoslovak agriculture", in *Czechoslovak Economic Digest*, No. 6, 1976, p. 85.

[56] Sown area has been selected as the indicator of the size of the farm for the table because the most complete comparable data are available on this basis. Area of arable land does not differ too much from this indicator, due to the fact that the share of sown area in most countries has been very close to 100 per cent of arable land.

[57] Yu. Shintyanin and B. Frumkin, *op. cit.*, p. 85.

TABLE 2.15

Structure of agro-industrial complex by NMP, gross product and employment

(Percentage share)

A = Supplying industries
B = Agriculture
C = Processing industries and services

	NMP, total economy = 100						*Agro-industrial complex in 1965 = 100*					
	1950			*1965*			*Gross product*			*Employment*		
Country	*Total*	*B*	*A + C*	*Total*	*B*	*A + C*	*A*	*B*	*C*	*A*	*B*	*C*
German Democratic Republic.	32	12	20	31	12	19	13	39	48	8	58	34
Czechoslovakia	38	16	22	30	12	18	10	40	50	6	69	25
Poland	44	23	21	37	20	17	6	54	40	2	88	10
Soviet Union	40	22	18	36	21	15	6	58	36	3	82	15
Hungary	44	32	12	36	21	15	7	58	35	3	82	15
Bulgaria	61	42	19	52	33	19	2	63	35	1	86	13
Romania	45	28	17	43	30	13	5	70	25	1	92	7

Source: J. Kořalka, "Agriculture in the modern world", in *Hospodářské Noviny*, No. 9, 1967, p. 9.

TABLE 2.16

Structure of agro-industrial complex by output, employment and productive fixed assets

(Percentage share, total AIC = 100)

A = Supplying industries
B = Agriculture
C = Processing industries and services

Country and year	*Gross product*	*NMP*	*Employment*	*Productive fixed assets*
Bulgaria, 1970				
A	11	9	5	15
B	42	62	84	65
C	47	29	11	20
Poland, 1975	[a]			
A	12.5	9.6	4.5	9.6
B	41.7	45.1	76.2	65.8
C	46.3	44.8	17.3	24.6
Soviet Union, 1972	[b]			
A	16.2	. .	10.9	11.6
B	40.3	. .	66.1	63.0
C	43.4	. .	23.0	25.3

Sources: For Poland: *Polityka zywnościowa P.R.L.*, Warszawa, 1975, p. 36, quoted in W. Jampel, "Le programme alimentaire polonais pour 1976-1990", in *Revue de l'Est*, No. 3, 1976, p. 27.

For Bulgaria: G. Kostadinov, "Contribution to the programme-oriented method and the complex approach to the planning of the agro-industrial complex", in *Planovo Stopanstvo*, No. 9, 1973, p. 36 (in Bulgarian).

For the Soviet Union: M. Edel'man, "Methodological problems of defining a national-economic agro-industrial complex", in *Voprosy Ekonomiki*, No. 4, 1975, p. 58.

[a] Sales only.

[b] Value of global social product

TABLE 2.17

Utilization of agricultural products

(Percentages; total = 100)

Country and year	*Used in agriculture (as seed and feed)*	*Processed in non-agricultural sectors*	*Consumed directly by the population*	*Other uses (exports, changes in stocks* et al.*)*
Czechoslovakia				
1967	33.2	46.2	14.0	6.6
1973	28.6	46.6	15.0	9.8
Hungary				
1970	24.9	32.9	23.2	19.0
1972	24.1	32.9	19.8	23.2
Poland				
1967	40.3	34.6	20.5	4.6
1973	41.4	39.4	18.1	1.1
Soviet Union				
1959	23.1	39.6	33.0	4.3
1966	20.7	43.9	25.7	9.7
1972	20.3	52.4	24.7	2.6

Sources: National statistics; for the Soviet Union M. Edel'man, "Methodological problems of defining a national-economic agro-industrial complex", in *Voprosy Ekonomiki*, No. 4, 1975, p. 51.

Note: Data are derived from input-output tables of given years.

in 1975. Most of them (44 per cent) were organized in construction, 18 per cent in livestock and 7 per cent in feed mix production.[58]

The reorganization of management in agriculture has also been influenced by changes in the character and intensity of interrelationships between sectors within the agro-industrial complex. A Ministry for Agriculture and the Food Economy was established as early as 1967 in the German Democratic Republic. By 1972 all east European countries except Poland had established a ministry of this type. These changes represented only the first step in the reorganization of the whole management structure.

Change in the organizational structure at the level of the enterprise started on a nation-wide scale in Bulgaria in 1971. Farms were organized into 167 agro-industrial combines encompassing the whole country. In 1972 a process of vertical integration of industry and agriculture was opened up with the formation of industrial-agricultural combines in the sugar industry. In 1975, the integration of processes was extended to include research organizations, and the first scientific-production associations established. The whole system took on its final organizational shape with the formation of the National Agro-Industrial Complex in August 1976 as a new form of management for agriculture, the food-processing industries, the fodder industries, agricultural research, and agricultural schools on a national level.

The German Democratic Republic is another country where reorganization of agricultural management has radically changed the institutional set-up on the level of basic production units. The formation of inter-farm co-operative departments for crop production (*Kooperative Abteilungen Pflanzenproduktion*) started in 1971. In that year, 337 co-operative departments encompassing 14.4 per cent of cultivated land in the socialist sector and with an average size of 2,530 hectares were formed. By the end of 1975, some 1,200 such units had been established; their share in the socialist sector in terms of agricultural land rose to 88 per cent, with the average size exceeding 4,100 hectares per farm.[59] Vertical integration between agricultural units and processing enterprises has been carried on by the formation of co-operative unions (*Kooperationsverbände*). The process started in 1967 with the formation of 36 unions, and by the end of 1974 there were 391, including 112 in livestock, 90 in milk production, 70 in potatoes and 37 in cereals.

In Hungary the process of land concentration has led to intensive centralization of large-scale farming, particularly in the state sector. Vertical integration started in 1973 with the transformation of some state farms into agro-industrial unions. Industrial production systems, which were first introduced in the poultry and eggs and pork sectors, have now been extended to crop growing. Large-scale industrial systems for the growing of maize were introduced in 1970-1971 and covered more than half a million hectares by 1975, accounting for about

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[58] *Ekonomicheskaya Gazeta*, No. 41, 1976.

[59] H. G. Schulze, A. Trützschler, "On combining agricultural production and the processing of agricultural products in the period of transition to industrial production methods in the agriculture of the GDR", in *Wirtschaftswissenschaft*, No. 6, 1976, p. 833 (in German).

TABLE 2.18

State and collective farms

(Numbers in units — A; average size of sown area per farm in hectares — B)

Country	State farms				Collective farms			
	1960	1965	1970	1975	1960	1965	1970	1975
Bulgaria								
A	67	104	156	148[a]	932	920	744	696[a]
B	..	2 750	2 800	2 900	..	3 270	3 630	3 740
Czechoslovakia								
A	365	329	336	250	10 816	6 704	6 270	2 736
B	..	2 990	3 020	4 040	..	450	480	1 160
German Democratic Republic								
A	669	572	511	463	19 611	15 506	9 355	4 900
B[b]	..	270	440	820	..	..	..	..
Hungary								
A	333	214	180	147	4 724	3 750	2 805	1 834
B	..	2 950	3 350	4 120	..	870	1 150	1 920
Poland								
A	5 734	6 515	5 356	3 660	1 978	1 251	1 106	1 216
B	..	290	380	630	..	130	170	200
Romania								
A	560	721	370	391	4 887	4 680	4 626	4 649
B	..	2 320	4 440	4 670	..	1 450	1 370	1 420
Soviet Union								
A	7 375	11 681	14 994	16 900*[c]	44 944	36 917	33 561	28 952
B	..	7 600	6 100	6 350	..	2 850	2 950	3 390

Sources: As for table 2.1.

[a] Refers to 1972. Agro-industrial combines were first established in 1971. In 1975 there were 164 AICs with an average arable area of 24 500 hectares.

[b] State and collective farms taken together. 1 210 co-operative departments of crop production with an average sown area of 3 100 ha were established over the period 1971-1975.

[c] Excluding animal-fattening farms.

60 per cent of the total area sown to maize. For all crops the system had by 1975 been extended to about 1 million hectares or 18.5 per cent of total arable land.

In Czechoslovakia and Romania, the process of the formation of large-scale socialist farms has been almost completed. The new trends in management reorganization are directed towards the formation of agro-industrial unions. During the plenary session of the CC of the CPCZ in October 1975, and also during the discussion in the Romanian Great National Assembly in August 1975, this issue was considered in detail. In both countries an acceleration of the process has been envisaged for the 1976-1980 period. The trend towards large-scale socialist farming in Poland has been less intensive, and the average size of both state and collective farms was in 1975 a great deal below the size considered as optimum in the other countries of the region. Very likely the process of concentration of farms will continue here. In 1974 the first agro-industrial union was established.

As mentioned earlier, the process of formation of inter-farm associations progressed gradually in the Soviet Union during the period 1971-1975. 6,327 interfarm associations, encompassing more than 94,000 member farms and enterprises, existed in 1975. The greater part of them (6,086) were specialized. A new impetus for inter-farm co-operation and agro-industrial integration has been provided by the decision of the CC of the Soviet Union adopted in June 1976, which emphasized the need to maintain a differentiated and stage-by-stage approach to the solution of all questions relating to these processes.[60]

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[60] *Pravda*, 2 June 1976.

3. INDUSTRY AND ENERGY

A. INDUSTRY

(i) Over-all growth

The gross industrial output of the area as a whole rose in the period 1971-1975 at an average rate of 7.7 per cent. This represents a slower pace than the 8.5 per cent attained in the comparable preceding period. A deceleration on this scale was foreseen in the growth rates given in the medium-term plans of the individual countries for that period.

Gross output (A), employment (B) and labour productivity (C)

	Eastern Europe			*Eastern Europe and Soviet Union*		
	A	*B*	*C*	*A*	*B*	*C*
1961-1965	7.6	2.5	5.0	8.3	3.5	4.6
1966-1970	8.0	2.5	5.4	8.5	2.7	5.6
Plan 1971-1975 . .	7.7	1.7	5.9	7.9	1.3	6.5
1971-1975	8.7	2.3	6.2	7.7	1.8	5.9
Plan 1976-1980 . .	7.8	0.8	7.0	6.8	0.7	6.1

These aggregate results cover a rather wide spectrum of performance in the various countries. Growth has ranged from a rate of 6.3 per cent in Hungary to a rate of 12.9 per cent in Romania (table 3.1). In Poland and Romania, growth was actually faster in the 1971-1975 period than in the preceding quinquennium. It was at about the same level in Czechoslovakia, the German Democratic Republic and Hungary. Nevertheless, a comparison of plans and results shows that most countries have achieved—and a number of them have significantly over-fulfilled—their production targets.

The rate of growth in the area was obviously heavily weighted by the performance of industry in the Soviet Union. While the 7.4 per cent increase attained by this country must be judged as impressive by the scale of increment it implies, it marked a renewal of the long-term trend towards retardation which had been temporarily reversed in the 1966-1970 period (chart 3.1). A slower rate of growth had in fact been foreseen by the plan, but difficulties were encountered in meeting even a reduced target. Obstacles included delays in the putting into operation and making full use of new production capacities, and the slow adaptation of the structure of output to changing requirements. But more important than these factors was the effect of the crop failures which occurred in 1972 and 1975. The critical shortages of agricultural supplies which developed, particularly in the aftermath of the low 1975 harvest, led to an increase in non-utilized production capacity in the consumer-goods sector, and had a reverberating effect on the productive system.

Among the east European countries only Albania experienced great difficulty in meeting its industrial output target. Albania finds itself on the threshold of industrial development and, viewed in the light of achievements during the 1966-1970 period, the 1975 plan target did not appear over-ambitious. However, the resources available for investment—part of which were evidently to be obtained from abroad—did not turn out as planned. Consequently, there was a decrease in growth rates over and above that envisaged.

The fact that all the other countries were able successfully to accomplish medium-term output programmes does not mean that they did not also meet serious difficulties in the implementation of these programmes. In particular, the increase in oil and other raw material prices which took place in the closing years of the plan period imposed a great burden on most of these countries. In the face of a sharply deteriorating trade balance with the west, it was necessary to step up exports to these markets. This was done to an inadequate extent, however, owing to a slackening in the growth of demand and insufficient competitiveness of products. The terms of trade with the Soviet Union have also deteriorated. This means that, in terms of volume, exports to the Soviet Union had also to be expanded faster than imports. While meeting no obstacles on the demand side, expansion was limited here by the speed at which adjustment in production patterns could be made and by restrictions imposed by internal requirements.

Altogether, the conditions in which industrial growth targets for the 1976-1980 plans were drafted were considerably more difficult than were those pertaining at the time of the elaboration of the 1971-1975 plans. It is significant therefore that it is only in the Soviet Union that mounting difficulties have been expressed by a moderation in growth plans. In most of the east European countries, the rate of expansion foreseen in the plans is practically identical to that which was scheduled in the plans for 1971-1975. Exceptions are Albania and Bulgaria, the only two countries which experienced a slowdown in the industrial growth rate in the course of the realization of those plans.

If it is exactly on target, the growth rate of gross industrial production will everywhere be lower in the second part of the 1970s than that achieved in the first part. An exception is Bulgaria, where the plan calls for a continuation of the previous actual rate. The slowdown will be minimal in the German Democratic Republic and Hungary, but as much as 2 percentage points in Poland and Romania. Industrial growth will remain fastest in Romania, with Bulgaria coming second instead of Poland. Czechoslovakia, the German Democratic Republic, Hungary and the Soviet Union will expand industrial production at practically identical rates within the order of 5.9 to 6.3 per cent per year, while

TABLE 3.1

Changes in gross output and factor inputs in industry

(Average annual percentage change)

	Gross output	*Employment*	*Labour productivity*	*Fixed capital stock*	*Fixed investment*	*Capital intensity*	*Capital productivity*
Albania							
1966-1970	12.9	10.5	2.2	..	..	..	..
Plan 1971-1975	10.0-10.7	5.1-5.3	4.7-5.1	..	19.7	..	..
1971-1975	8.7	4.6	3.9	..	7.0*	..	..
Plan 1976-1980	7.1-7.6	4.1	2.8-3.2	..	8.6[a]	..	..
Bulgaria							
1966-1970	10.9	4.0	6.6	13.6	12.6	9.3	−2.5
Plan 1971-1975	9.2-9.9	1.5-2.1	7.6	11.2*	..	9.3	−1.4
1971-1975	9.1	2.3	6.6	9.7	5.9	7.3	−0.7
Plan 1976-1980	9.2	0.7	8.5	..	..	..	..
Czechoslovakia							
1966-1970	6.8	1.3	5.4	4.4	5.0	3.0	2.3
Plan 1971-1975	6.0	0.7	5.3	5.2*	..	4.4	0.8
1971-1975	6.6	1.1	5.4	5.6	6.9	4.4	0.9
Plan 1976-1980	5.9	0.6	5.3	..	..	..	..
German Democratic Republic							
1966-1970	6.5	0.4	6.0	5.2	8.6	4.7	1.3
Plan 1971-1975	6.0	−0.2	6.2	4.9*	..	5.1	1.2
1971-1975	6.5	1.0	5.4	6.3	3.4	5.2	0.2
Plan 1976-1980	6.0-6.3	0.5	5.4-5.7	..	..	..	..
Hungary							
1966-1970	6.2	2.7	3.4	7.0	8.7	4.2	−0.7
Plan 1971-1975	5.7-6.0	1.5	4.1-4.4	6.1*	..	4.6	−0.2
1971-1975	6.3	0.1	6.3	8.0	7.0	7.9	−1.5
Plan 1976-1980	6.0	–	6.0	..	..	..	..
Poland							
1966-1970	8.3	3.3	4.9	8.0	7.7	4.5	0.2
Plan 1971-1975	8.2-8.5	2.5	5.6-5.9	8.2	..	5.6	0.2
1971-1975	10.4	2.6	7.7	9.9	21.9	7.1	0.5
Plan 1976-1980	8.2-8.5	0.7	7.4-7.8	..	..	..	..
Romania							
1966-1970	11.9	4.3	7.4	13.3	11.2	8.7	−1.2
Plan 1971-1975	11.0-12.0	3.5-4.4	7.3	..	..	..	..
1971-1975	12.9	6.3	6.2	13.2	12.4	6.5	−0.2
Plan 1976-1980	10.2-11.2	1.6-2.1	8.5-9.0	..	..	..	..
Soviet Union							
1966-1970	8.5	2.9	5.5	8.7	6.8	6.2	−0.1
Plan 1971-1975[b]	8.0	1.1	6.8	8.3	..	7.0	−1.0
1971-1975	7.4	1.5	5.9	8.6	6.9	6.1	−1.1
Plan 1976-1980	6.3	0.7	5.6	6.7[c]	..	6.0	0.4

Sources: National statistics; *CMEA Statistical Yearbook 1976;* five-year plan documents.

Note: Because of some differences in coverage the figures shown in this table may differ slightly from those shown in table 1.3. Figures for labour productivity (gross output per employee), capital intensity (fixed assets per employee) and capital productivity (gross output per unit of fixed assets) are in most cases derived from the data on output, employment and fixed assets. The plan figures for employment, however, are in most cases derived from output and productivity data. The plan figures refer as a rule to the latest version available at the time of writing of this report.

[a] Five-year average over the preceding five-year average.

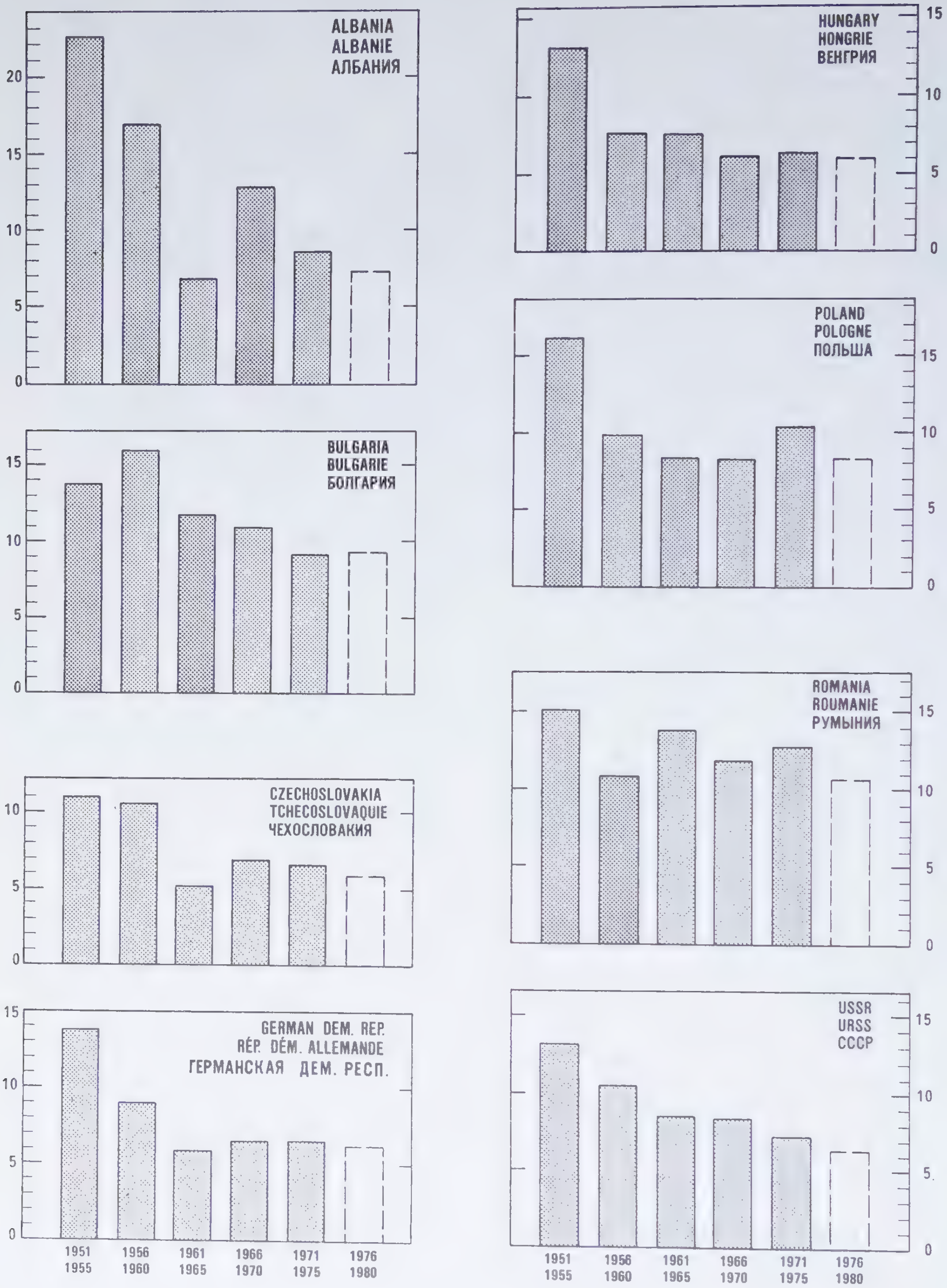
[b] According to an earlier version, industrial production was to increase at an average rate of 7.3-7.9 per cent, and industrial employment at a rate of 0.8-0.9 per cent. These were the figures proposed in the directives for the five-year plan. However, the figures were amended in the final plan document published in the *State Five-Year Plan for the Development of the National Economy of the USSR in 1971-1975*, Moscow, 1972. (In Russian.)

[c] Estimated on the basis of the officially reported figure on the rate of growth of fixed assets per employee and the planned rate of growth of employment. According to a different source (F. Kotov, "The development of the national economy during the tenth five-year plan", in *Voprosy Ekonomiki*, No. 4, 1976) the stock of fixed assets in industry is to grow by 40 per cent over the five-year period, implying an average growth rate of 7 per cent.

CHART 3.1

Gross industrial output

(*Average annual percentage change*)



Sources: National statistics; *CMEA Statistical Yearbooks 1970, 1976*; plans and plan-fulfilment reports.

the combined industrial output in the area will rise at a rate of around 6.8 per cent.

(ii) Growth efficiency

There are various difficulties which one encounters in trying to quantify growth efficiency. Growth may be "extensive", i.e. characterized by a high rate of expansion of factor inputs, yet "intensive", i.e. characterized by a high rate of growth of factor productivity. Intensification of industrial growth is usually described as a process whereby productivity gains provide an increasing contribution to output growth. On this definition intensification is not incompatible with a slowdown in the rates of growth of output and productivity.

There are other difficulties on both the conceptual and statistical levels. It is a simplification to take factor inputs to mean inputs of labour and of capital. But even with such a simplified interpretation there arises the problem of weight to be assigned to the two inputs. Moreover, the data available on capital are restricted (they exclude working capital) and the data on both employment and capital can be compared only with those on gross output. This means that in trying to quantify growth efficiency another indicator must also be taken into account—that of utilization of materials. However, although the problem of material intensity of production has been attracting increasing attention, there are no adequate indices available on a global level to measure this variable.

Labour productivity—measured in terms of gross output per man—rose in the area, on a weighted basis, at a rate of 5.9 per cent during the 1971-1975 period—this by comparison with the 5.6 per cent rate attained in the preceding quinquennium. This higher figure does not, however, reflect a general improvement, but is rather the result of more rapid growth in Hungary, Poland and the Soviet Union, outweighing slower growth in the German Democratic Republic and Romania. In Bulgaria and Czechoslovakia, the rate of growth of labour productivity remained unchanged between the 1966-1970 and 1971-1975 periods. In Albania it improved slightly, but the pace of expansion remained slow in comparison with the other countries.

The picture is more favourable if growth efficiency in terms of labour utilization is depicted on the basis of the proportion of output growth which can be accounted for by increases in the level of labour productivity. As the figures below show, there was an improvement in this indicator in Bulgaria and—to a lesser extent—in Czechoslovakia, as well as in Hungary, Poland and the Soviet Union. However, in the German Democratic Republic and Romania the proportion was less favourable than it had been in the preceding period.

The proportion of output growth accounted for by growth of labour productivity

	1951-1970	*1966-1970*	*1971-1975*	*Plan 1976-1980*
Bulgaria	0.49	0.62	0.74	0.92
Czechoslovakia	0.71	0.80	0.83	0.90
German Democratic Republic	0.84	0.94	0.84	0.92
Hungary	0.52	0.56	0.98	1.00
Poland	0.63	0.60	0.75	0.92
Romania	0.59	0.63	0.50	0.82
Soviet Union	0.61	0.65	0.80	0.89
Area average (unweighted)	0.63	0.69	0.78	0.91

Against this there was a tendency for the rate of change in *capital productivity* (as measured by gross output per unit value of the stock of fixed assets) to deteriorate. Exceptions to this tendency are noted only for Bulgaria and Romania, where the rate of decline in capital productivity has slowed down (table 3.1).

In the text table below on total productivity a rough attempt is made to weight together the rate of change in labour productivity and that of capital productivity. The result—what is termed the rate of growth of total productivity—is then expressed in the following text table as a ratio of the growth rate of output. This provides a more synthetic indicator of the relative factor intensity of the growth process. The trends that emerge are conflicting. Growth appears to have become more intensive in Bulgaria, Hungary, Poland and—to a slight extent—in the Soviet Union, whereas in Czechoslovakia, the German Democratic Republic and Romania it has become less intensive. It is also noteworthy that there was a tendency for the inter-country spread in growth intensity to become smaller; only Romania moved further away from the average for the area.

Total productivity

(Average annual percentage change)

	1951-1970	*1966-1970*	*1971-1975*
Bulgaria	3.7	2.8	3.6
Czechoslovakia	4.7	4.2	3.6
German Democratic Republic	4.1 [a]	4.0	3.3
Hungary	2.8	1.8	3.2
Poland	4.6	3.0	4.8
Romania	5.0	3.9	3.6
Soviet Union	3.9	3.3	3.1
Area average (unweighted)	4.1	3.3	3.6

Source: The data for 1951-1970 are taken from a study being prepared by the secretariat, *Structure and Change in European Industry*, those for 1966-1970 being slightly modified in the light of revised data. The figures for 1971-1975 were obtained by weighting together the growth rates of labour productivity and of capital productivity shown in table 3.1, with a weight of 0.6 attached to the former and one of 0.4 attached to the latter. The relationship approximates that between the wage fund and the sum of an imputed capital charge and depreciation as derived in the above-mentioned study.

[a] 1956-1970.

The proportion of output growth accounted for by the growth of total productivity

	1951-1970	*1966-1970*	*1971-1975*
Bulgaria	0.37	0.26	0.40
Czechoslovakia	0.56	0.63	0.54
German Democratic Republic	0.48[a]	0.62	0.51
Hungary	0.33	0.29	0.50
Poland	0.46	0.36	0.46
Romania	0.42	0.33	0.28
Soviet Union	0.41	0.39	0.42
Area average (unweighted)	0.43	0.41	0.51

[a] 1956-1970.

As already mentioned, it is not sufficient to analyse changes in growth efficiency in terms of changes in the productivity of labour and capital when using gross output as a production indicator. Trends in the *material intensity of production* may modify the impression gained from such an analysis. This may be particularly true during periods when investment in material-substituting technology rises steeply.

In the absence of a better measure, some impressions of trends in the material intensiveness of production can be obtained by comparing aggregate gross output and net output growth rates.[1] As can be seen from table 3.2, the ratio of net to gross output growth in the last quinquennium has been less favourable than in the preceding one in most countries. This may well reflect a rising share of material costs in total costs.

The policy objective of intensifying the growth process has been incorporated in previous medium-term plans. But never has the gravity point of the plans shifted towards efficiency targets to such an extent as it has in the plans for 1976-1980. While the plans for the past quinquennium could still count upon an increase in industrial employment of 1.3 per cent per year on average for the area, the present plan figures add up to an overall figure of 0.7 per cent. Investment resources are also scarce. In the Soviet Union the planned growth of the industrial capital stock has been set at a moderate rate of 6.7 per cent per year—nearly 2 percentage points lower than in the plan for the past quinquennium. The plans for the east European countries contain less precise information on this subject. However, according to rough estimates, the planned growth rate of the industrial capital stock should here also be lower in most cases. The tendency has been, it seems, to set the plan target for the latter in such a way as to assure an increase in *capital intensity* (fixed assets per employee) comparable to that which was actually attained in the years 1971-1975. But the growth of labour productivity is scheduled to accelerate in a number of cases, pointing to a more favourable relationship between the growth rates of output and capital than was the case in the preceding quinquennium.

TABLE 3.2

Gross output (A) and net output (B) in industry

(Average annual percentage change)

	A	*B*	*B/A*
Bulgaria			
1966-1970	10.9	12.3	1.13
1971-1975	9.1	9.3	1.02
Czechoslovakia			
1966-1970	6.7	6.2	0.93
1971-1975	6.7	6.0	0.90
German Democratic Republic			
1966-1970	6.5	5.9	0.91
1971-1975	6.5	5.9	0.91
Hungary			
1966-1970	6.2	7.4	1.19
Plan 1971-1975	(5.9)	6.7	1.14
1971-1975	6.3	7.3	1.16
Poland			
1966-1970	8.3	7.7	0.93
Plan 1971-1975	(8.3)	8.5	1.02
1971-1975	10.5	10.8	1.03
Romania			
1966-1970	11.9	12.7	1.07
1971-1975	12.9	13.2	1.02
Soviet Union			
1966-1970	8.5	9.8	1.15
1971-1975	7.4	7.8	1.05

Sources: As for table 3.1.

Note: Figures in parenthesis represent the mean of the range of planned growth rates.

The problem of *saving energy and raw materials* looms much larger. Plans to reduce material inputs are usually formulated at the enterprise level and those global targets which are published are as a rule expressed in physical units. Thus in the Soviet Union the current plan provides for the saving of around 9 million tons of rolled metals, 50 billion kWh of electricity, 35 million tons of boiler fuel and 5.5 million tons of gasoline by 1980 in relation to the present norms of consumption. In the German Democratic Republic during the period 1976-1980 consumption of raw and some basic materials per unit of value of industrial output is to be lowered annually by 3 per cent (the 1971-1975 plan called for an annual reduction of 2 per cent) and the specific consumption of energy in industry by 4.7 per cent (the comparable figure in the 1971-1975 plan was 4 per cent). In Bulgaria, the cost of materials in industrial production is to be reduced by 8 per cent during the current quinquennium.

(iii) Growth of output of producer and consumer goods

In most countries of the region the plans for 1971-1975 incorporated a shift in the growth relationship between producer- and consumer-goods output; this was in line with the policy objective of accelerated improvement of living standards. The change foreseen was to be most dramatic in the Soviet Union, where for the first time in the history of planning the growth rate of consumer-goods output was to be faster than that of producer goods. Obviously, in a country the size of the Soviet Union, where the volume of net imports is rather insignificant in relation to consumption, a shift on the scale envisaged was ultimately tied up with a planned shift in the national economy away from investment and in favour of personal consumption. It is noteworthy, however, that a closing of the traditional gap between the growth rates of the two major industrial subdivisions was also foreseen in some countries where the rate of investment was to be stepped up. This reflected the developing role of international specialization, with exports of consumer manufactures becoming increasingly important, particularly in trade with the Soviet Union.

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[1] The problems of comparability of these indices were discussed in earlier secretariat publications, particularly in the *Economic Survey of Europe in 1969*, United Nations, New York 1970, part I, pp. 13-14.

Consumer goods are produced mainly by the food processing sector and light industry. While heavy industry plays an increasing role in the supply of consumer goods, there is obviously an intimate relationship between the growth of output of consumer goods and the level of agricultural supplies. Again this is more true for a large country such as the Soviet Union where net imports of raw materials for the food and light industries normally represent a small proportion of the materials used by these industries. The 1971-1975 plan for the Soviet Union for consumer-goods output rested heavily on the assumption that the growth rate of agricultural production would continue at an unchanged rate of 3.9 per cent. Since consumer-goods output did, in fact, expand at a rate of 8.3 per cent in the 1966-1970 quinquennium, the growth rate of 8.2 per cent stipulated for 1971-1975 (table 3.3) was actually somewhat conservative, considering that the share of predominantly producer-goods branches in the total of consumer-goods output was to rise radically.

In reality, output of consumer goods expanded in the Soviet Union at a rate of 6.6 per cent during the 1971-1975 period (table 3.4). The growth rate of agricultural production was 2.5 per cent, implying a higher ratio of consumer goods to agricultural production than that planned or that experienced in the 1966-1970 period. The change in relationship was apparently made possible by a reduction in inventories and a steep rise in agricultural imports.

In a number of east European countries also the support expected from agriculture did not turn out exactly as planned. However, as the shortfalls involved were much smaller, at least in absolute magnitude, the repercussions were not as large. In particular, Poland and Romania were able to over-fulfil their targets for consumer-goods output, Poland by a considerable amount. The discrepancy between the growth of producer goods and that of consumer-goods output was narrowed down greatly in the German Democratic Republic, the rate of growth of consumer-goods output having accelerated while the rate of growth of producer-goods output slowed down.

There is little information available on the relative rates of growth of the two sectors in the current five-year plans. In the Soviet Union, the output of producer goods is to grow at an average rate of 6.6 per cent and output of consumer goods at an average rate of 5.7 per cent. The relationship between these figures is the same as the actual relationship in the last quinquennium. Judging from scattered information, the gap between the growth rates of the two sectors should narrow in Bulgaria, will remain about the same in the German Democratic Republic, Poland and Romania, and widen in Czechoslovakia. In Hungary, where output of consumer goods grew at a somewhat faster rate than that of producer goods 1971-1975, the rates will apparently be similar in the present quinquennium.

TABLE 3.3

Gross output of producer goods (A) and of consumer goods (B)

(Average annual percentage change)

	A	*B*	*A/B*
Albania			
1966-1970	15.8	9.5	1.66
Plan 1971-1975 . . .	(12.6)	(7.3)	1.73
1971-1975	9.4	7.8	1.21
Bulgaria			
1966-1970	11.9	9.8	1.21
Plan 1971-1975 . . .	11.0	8.5	1.29
1971-1975	10.6	7.8	1.36
Czechoslovakia			
1966-1970	6.9	6.4	1.08
1971-1975	7.0	6.2	1.13
German Democratic Republic			
1966-1970	7.3	4.6	1.59
1971-1975	6.8	5.9	1.15
Hungary			
1966-1970	5.9	6.5	0.91
1971-1975	6.5	6.8	0.96
Poland			
1966-1970	9.4	6.5	1.45
Plan 1971-1975 . . .	8.7	7.3	1.19
1971-1975	10.6	10.4	1.02
Romania			
1966-1970	13.0	9.8	1.33
Plan 1971-1975 . . .	(12.4)	(10.3)	1.20
1971-1975	13.7	11.1	1.23
Soviet Union			
1966-1970	8.6	8.3	1.04
Plan 1971-1975 . . .	7.9	8.2	0.96
1971-1975	7.8	6.6	1.18
Plan 1976-1980 . . .	6.6	5.7	1.16

Sources and notes: As for table 3.2.

(iv) The branch pattern of growth

Industrial expansion at the branch level has tended to follow a fairly well-defined pattern—the combined effect of growth strategy, technological inter-relationships, and shifts in the structure of demand—and neither the developments during the 1971-1975 period nor those which are envisaged for the current quinquennium mark any wide departures from this pattern. This is true at least with regard to trends in the area as a whole, as is illustrated by the growth elasticities of the various branches in relation to the growth of industry as a whole (table 3.5).[2] At the most general level, the tendency

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[2] Calculated as the ratio of the growth rate of a given branch to the aggregate industrial growth rate.

TABLE 3.4

Structure and growth rates of output of consumer goods in Soviet industry

	Percentage share			*Average annual percentage change*			
	1965	*1970*	*1975*	*1966-1970*	*Plan 1971-1975*	*1971-1975*	*Plan 1976-1980*
Total consumer goods (Group B)	100.0	100.0	100.0	8.3	8.2	6.6	5.7
Light industry	26.4	28.8	26.6	10.5	6.8	4.9	ca. 4.9
of which:							
Textiles	3.5	2.9	2.7	4.6		4.8	
Clothing	12.8	14.7	13.0	11.7		4.1	
Footwear	3.2	3.1	2.6	7.8		2.9	
Other	6.9	8.1	8.3	12.1		7.2	
Food industry	54.6	48.6	45.2	6.1	6.2	5.1	ca. 4.4
of which:							
Meat and dairy products	17.3	16.6	16.8	7.1		6.9	ca. 3.9
Fish	2.4	2.3	1.8	8.5		1.6	ca. 5.6
Bread and flour	9.1	7.7	6.3	5.0		2.6	
Sugar and pastry	7.4	6.1	5.4	4.7		4.1	
Other branches	19.0	22.6	28.2	12.5	13.7	11.4	
of which:							
Electricity and fuel	3.2	3.1	3.2	7.8		7.5	
Engineering	6.2	8.5	11.7	15.7	17.1	13.8	
Chemicals	2.4	3.0	3.3	14.1		8.7	
Wood and wood processing	3.4	3.3	3.6	8.1		8.4	

Source: Narodnoe Khozyaistvo SSSR v 1975 godu (Statistical Yearbook for 1975), five-year plans, plan-fulfilment reports and secretariat estimates.

towards a narrowing down of differences between branch growth rates, which has been present for some time, became more accentuated in the period 1971-1975, and a continuation of this trend is to be expected on the basis of the targets written into the 1976-1980 plans. A notable exception is the fuel industry, which historically has expanded at a significantly slower rate than industry as a whole. The growth rate of this industry is currently tending to move further away from, rather than closer to, the average.

Descending from this very high level of generalization, one finds a variety of shifts in the pattern of growth which reflect the specific conditions under which industrial development took place during the last quinquennium. Some of these shifts were planned but others were not. Moreover, although deviations from the historical pattern appear to have been temporary in most cases, there are also some which represent genuine changes in trend.

In the *Soviet Union*, the spread between the growth rate of engineering output and that of the output of industry as a whole has actually widened. The rate of growth of this branch has remained practically unchanged at a rate of 11.6 per cent (table 3.6), a figure which is nearly 60 per cent higher than that of industry as a whole. The 1971-1975 plan provided for a growth rate of only about one-third above the average, and although this corresponded to what had actually happened in the preceding quinquennium it was lower than the average for the more distant past. On the other hand, there was a reduction in the growth rate of light industry from 8.6 to 4.6 per cent, the growth elasticity declining from 1.00 to 0.62 per cent—significantly more than planned. Between these two extremes a decline in the growth elasticity of the energy industry can be noted. This contrasted with an increase in the growth elasticity of the fuel industry.

In the *east European countries* a common feature (as already mentioned) was a decline in the growth elasticity of the fuel industry. The rate of growth of the energy industry was also relatively lower, the growth elasticity having decreased sharply in Bulgaria and Romania. Other important shifts in the growth pattern included a sharp drop in the growth elasticity of metallurgy in Bulgaria, of engineering in the German Democratic Republic, of the chemicals industry in Bulgaria, Poland and Romania, and of the construction materials industry in Romania. Against this there was a notable increase in the growth elasticity of the chemicals industry in the German Democratic Republic and of the food industry in Czechoslovakia, the German Democratic Republic and Poland.

A characteristic feature of the current five-year plans is the attempt to keep the growth elasticity of the energy industry at the level of the last quinquennium. Only Bulgaria plans a recovery, although not to the previous level. The plans contain no data for the fuel industry, except for Romania, where the growth elasticity of that branch is to rise sharply to a level not only exceeding that of 1971-1975 but also that of the 1966-1970 period.

TABLE 3.5

Ratio of growth rates of industrial branches to over-all industrial growth rates

(Over-all industrial growth rate = 1.00)

	Energy	Fuel	Metallurgy	Engineering	Chemicals	Construction materials	Light industry	Food processing
Bulgaria								
1951-1970	1.37	1.14	1.43	1.54	1.68	1.38	0.86	0.73
1966-1970	1.22	1.39	1.70	1.44	1.96	0.93	0.95	0.54
1971-1975	0.58	0.93	1.20[a]	1.62	1.28	1.01	0.79	0.64
Plan 1976-1980	1.08	..	1.14[a]	1.62	1.32	..	0.80	0.76
Czechoslovakia								
1951-1970	1.08	0.79	1.01	1.43	1.53	1.24	0.69	0.59
1966-1970	1.07	0.74	0.75	1.37	1.44	1.01	0.72	0.57
Plan 1971-1975	1.23	0.42	0.82	1.28	1.53[b]	1.33[b]	0.90	0.50
1971-1975	0.91	0.48	0.81	1.27	1.48	0.99	0.85	0.70
Plan 1976-1980	0.97[c]	..	..	1.42	1.10[b]	1.25[b]	0.75	0.63
German Democratic Republic								
1951-1970	0.79	0.59	1.06	1.30	1.08	1.07	0.80	0.91
1966-1970	0.90	0.79	0.87	1.27	1.06	0.90	0.71	0.62
Plan 1971-1975[d]	0.93[c]	..	0.92	1.45	1.33	1.00	0.93	0.57
1971-1975	0.75	0.68	1.03	1.02	1.29	1.06	0.80	0.83
Plan 1976-1980[d]	0.72[c]	..	..	..	1.21	1.08	1.08	0.54
Hungary[b]		[e]						
1951-1970	1.06	0.59	0.90	1.21	1.61	0.93	0.87	0.77
1966-1970	1.32	0.60	0.89	1.24	1.87	0.84	0.74	0.76
Plan 1971-1975	1.32	0.26	0.75	1.00	1.51	1.56	1.03	0.69
1971-1975	1.17	0.32	0.75	1.20	1.62	0.79	0.74	0.72
Plan 1976-1980	1.14	0.25	0.75	1.08	1.55	0.89	0.98	0.86
Poland								
1951-1970	1.15	0.57	0.87	1.76	1.50	1.04	0.88	0.59
1966-1970	1.01	0.82	0.75	1.45	1.55	0.82	0.85	0.34
Plan 1971-1975	0.99	..	1.11	1.26	1.19	0.89	0.84	0.53
1971-1975	0.85	0.55	0.90	1.34	1.16	0.78	0.86	0.84
Plan 1976-1980	0.79[c]	..	..	1.28	1.32	0.89	0.87	0.76
Romania								
1951-1970	1.43	0.72	1.09	1.49	1.82	1.23	0.83	0.68
1966-1970	1.45	0.50	1.04	1.35	1.76	1.11	0.96	0.53
Plan 1971-1975	1.00	0.63	0.86	1.32	1.52	1.07	0.88	0.79
1971-1975	0.75	0.40	0.84	1.39	1.21	0.77	1.02	0.58
Plan 1976-1980	0.73[c]	0.71	1.14	1.15	1.49	0.89	0.79	0.79
Soviet Union			[a]					
1951-1970	1.27	0.76	0.95	1.44	1.35	1.36	0.76	0.80
1966-1970	1.05	0.67	0.67	1.38	1.44	1.00	1.01	0.70
Plan 1971-1975	1.06	0.76	0.68	1.36	1.44	0.88	0.85	0.78
1971-1975	0.96	0.80	0.69	1.57	1.42	0.99	0.62	0.70
Plan 1976-1980	0.88	..	0.56	1.41	1.64	0.57	0.78	0.70
Area average (unweighted)[b]		[f]						
1951-1970	1.17	0.76	1.04	1.46	1.51	1.18	0.81	0.72
1966-1970	1.15	0.81	0.95	1.35	1.57	0.94	0.85	0.58
Plan 1971-1975	1.08	..	0.85	1.27	1.42	1.12	0.90	0.65
1971-1975	0.85	0.63	0.90	1.34	1.35	0.91	0.81	0.72
Plan 1976-1980	0.90	..	..	1.33	1.38	0.93	0.86	0.70

[a] Ferrous metallurgy.

[b] Data not strictly comparable because of somewhat different coverage.

[c] Computed from electricity output in physical terms.

[d] Commodity production classified by industrial ministries.

[e] Mining.

[f] Excluding Hungary.

The engineering industry is to remain in the van of industrial expansion in Bulgaria and to move ahead of the chemicals industry in Czechoslovakia. In all other countries, however, the chemicals industry is to be the fastest growing branch. Other notable features are a sharp planned drop in the growth elasticity of the construction materials industry in the Soviet Union, and in that of the food industry in the German Democratic Republic.

Because of the low base, the structural pattern of growth tends to be more erratic in *Albania* than in any other country in the area. Judging by the limited information available, the period 1971-1975 was marked in that country by a particularly sharp variation in growth pattern (table 3.7). Compared with the preceding period the growth rates of the engineering and chemicals industries, and—judged on the basis of output in physical units—the electricity, oil and coal industries was very low. The 1976-1980 plan foresees a further reduction in the growth rate of the engineering industry, but a step-up in the growth rate of the chemicals, electricity and coal industries. Trends in the output of some basic products are shown in the following table:

Albania: Production of some basic industrial materials

(In thousands of tons, except for electricity, in millions of kWh, and natural gas, in millions of cu.m.)

	1965	*1970*	*Plan 1975*	*1975*	*Plan 1980*
Electricity	341.8	943.5	2 200	1 630	3 580
Coal	303.9	694.6	1 420	1 000	2 000
Crude oil	822.4	1 486.9	2 500	1 830	2 030
Natural gas	43.2	97.9	372	285	420
Chrome ore	310.8	466.0	900	780	1 140
Blister copper	4.2	5.6	9.9	8.5	13.1
Ferro-nickel	400.0	400.5	650	..	..[a]

Sources: As for table 3.7.

Note: Figures for 1975 and 1980 are estimated on the basis of reported actual and planned increases in production.

[a] Production is expected to increase by 3.3 times.

(v) Structural shifts within branches

Together with the diminishing intensity of structural shifts between branches, there is an opposing tendency for shifts in the structure of output within branches to become more intensified. New forms of international specialization and co-operation, the need to speed up technological progress and the process of quality improvement, and—not least—the need to adjust the structure of output in order to meet more easily the pattern of requirements, all contribute to this process. Only a sketchy survey of this subject can, however, be made, since there are no data available which would allow a systematic treatment.

In *ferrous metallurgy*, structural changes have gone in the direction of raising the share of quality steel and widening the range of shapes and sizes of rolled products. Changes in the product mix of this industry are seen, among other things, as a way of economizing on metals, and hence of substituting qualitative for quantitative growth. Improvement of product assortment has, however, tended to progress too slowly. In this connexion a number of plan documents single out targets relating to specific products which—although their share in production may not be large—cause bottlenecks and/or have been costly in terms of imports. Noteworthy in the Soviet case, for instance, is the call for an increase in the output of cold rolled products, transformer and low alloyed steels by 45 to 57 per cent, as against a planned increase in the aggregate output of rolled products of 19 per cent.

Although to a much larger extent tied to the availability of natural resources, *non-ferrous metallurgy* has been developing fast—at a rate exceeding in most cases that of ferrous metallurgy.[3] Little data on the composition of output are available. The Soviet Union—by far the largest producer—planned to increase the output of aluminium by 35 to 40 per cent in the 1971-1975 period. In Hungary, output of alumina rose by 71 per cent in the same period.[4] In Poland extensive development was witnessed in copper, output of which rose by 244 per cent[5] and in lead, output of which rose by 40 per cent.[6] Rapid growth of the non-ferrous metallurgy sector was also witnessed in Romania, output of aluminium and (according to some estimates) also of copper having doubled.[7]

In *engineering* changes in the structure of production have been particularly pronounced in recent years. In the

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[3] The development of the two metal-making divisions is illustrated by the following data (gross output, average annual percentage change):

	1966-1970	*1971-1975*	*Plan 1976-1980*
Czechoslovakia			
Ferrous	4.5	5.3	..
Non-ferrous	9.4	5.8	..
German Democratic Republic			
Ferrous	4.4	6.8	5.4-6.0
Non-ferrous	8.7	6.6	7.4-7.9
Hungary			
Ferrous	4.2	4.6	..
Non-ferrous	7.5	5.6	..
Poland			
Ferrous	5.4	7.6	..
Non-ferrous	9.8	15.4	..
Romania			
Ferrous	12.3	11.3	..
Non-ferrous	12.4	10.0	..
Soviet Union			
Ferrous	..	5.4[a]	3.5
Non-ferrous	..	7.0[a]	4.8

[a] Plan figures.

[4] Output rose from 441 thousand tons in 1970 to 756 thousand tons in 1975. The planned figure for 1980 is around 800 thousand tons.

[5] The increase in the output of electrolytic copper 1971-1975 was from 72.2 to 248.6 thousand tons, with a target for 1980 of 425 thousand tons. During the period under review Poland became a large exporter of copper. In 1975 exports amounted to 90.3 thousand tons as against 17.9 thousand tons in 1970. It is expected that the share of exports in production will continue to rise.

[6] From 54.5 thousand tons to 76.2 thousand tons. By 1980 production is planned to reach 120 thousand tons.

[7] Output of aluminium rose in Romania from 101 thousand tons to 204 thousand tons 1971-1975. The target for 1980 is 250 to 260 thousand tons.

TABLE 3.6

Industrial production in the Soviet Union by branches: structure and growth rates

	Percentage share			*Average annual percentage change*			
	1965	*1970*	*1975*	*1966-1970*	*Plan 1971-1975*	*1971-1975*	*Plan 1976-1980*
Total	100.0	100.0	100.0	8.5	8.0	7.4	6.3
of which:							
Electricity	2.8	2.9	2.8	9.0	8.5	7.1	5.2-5.9
Fuel	7.0	6.2	5.7	5.7	6.1	5.9	..
Ferrous metallurgy	..	..	..	5.7	5.4	5.1	3.5
Non-ferrous metallurgy	..	..	..	..	7.0	..	4.8
Engineering	19.9	23.0	27.8	11.7	10.9	11.6	8.9
Chemicals	5.0	6.0	6.9	12.2	11.5	10.5	10.3
Construction materials	4.1	4.1	4.1	8.5	7.0	7.3	3.3-3.9
Glass and china	..	..	..	10.0	..	10.5	..
Wood and paper	5.9	5.2	4.6	5.6	6.1	5.2	4.3
Light industry	17.0	17.0	14.9	8.6	6.8	4.6	4.9
Food	24.1	21.2	19.0	5.9	6.2	5.2	4.4

Source: As for table 3.1.

Soviet Union output of computers and computer parts continued to rise extremely fast, at an annual rate of 33 per cent. Rapid growth was also witnessed in passenger car production, output of which reached 1,201 thousand units in 1975, as against 344.2 thousand in 1970 (see appendix table),[8] and—among other major sections for which data are available—in automatic systems, chemical plants and agricultural machinery. In the current five-year plan, above-average targets were assigned to automatic systems, agricultural machinery, chemical plants and equipment for the oil industry. Although no quantitative data are available, it would appear that increased emphasis will also be put on the development of power engineering (including equipment for atomic power stations, automatic pumps for gas transportation, etc.) and heavy and transport engineering (including equipment for rolling mills, pipe-making, road-building machinery, containers and mechanical handling equipment, etc.).

In the east European countries, changes in the structure of engineering output have reflected—to an increasing

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[8] In 1975 exports reached a level of 310.2 thousand units, as compared with 91.8 thousand in 1970.

TABLE 3.7

Albania: gross output by industrial branches

	Percentage share in 1970	*Average annual percentage change*				
		1951-1970	*1966-1970*	*Plan 1971-1975*	*1971-1975*	*Plan 1976-1980*
Total	100.0	14.6	12.9	(10.4)	8.7	(7.3)
Electricity	3.5	21.9	21.3	15.6	..	19.6-20.1
Oil	6.8	14.6	15.2	10.4	..	4.9-5.2
Coal	1.4	15.0	11.9	13.0	..	10.3-10.5
Chrome	0.8	11.8	9.3	17.5	..	11.3-11.6
Copper	4.5	19.5	25.1	9.7	..	7.0-7.3
Nickel and ferrous ores	1.7	15.6[a]	22.7	13.7	..	43.1-43.6
Engineering	9.8	19.7	25.7	15.3	14.9	7.0-7.3
Chemicals	3.5	29.0	47.6	17.7	7.9	19.1-19.6
Construction materials	6.4	18.0	21.1	15.0	..	8.5-8.9
Glass and china	0.8	30.0	16.6	19.3	..	3.7-4.2
Wood and paper	7.9	15.6	10.0	6.8	..	3.4-3.7
Light industry	22.0	20.1	11.5	7.1	6.0	4.1-4.4
Food	29.4	10.4	5.8	7.1	8.6	4.2-4.6
Other	1.4	9.3	13.2	..	..	..

Sources: Statistical Yearbook for 1972 and documents on plans and plan fulfilment.

[a] 1961-1970.

Soviet Union: output of selected categories of engineering products

(Average annual percentage change)

	1966-1970	*Plan 1971-1975*	*1971-1975*	*Plan 1976-1980*
Total	11.7	10.9	11.6	8.9
Automation systems	13.1	14.6	12.5	12.1
Computers and parts	38.8	..	32.7	..
Chemical plants	3.4	..	11.1	8.4-9.9
Equipment for the oil industry	..	..	6.0	8.4-9.9
Metal-cutting machines	8.9	..	8.8	..
Forging and pressing machinery	8.9	..	10.1	..
Agricultural machinery	7.2	10.7	12.2	11.7
Equipment for light industry	8.9	15.2	9.9	5.4-7.0
Equipment for food processing	9.0	..	7.8	..

Sources : As for table 3.1.

extent—the process of deepening international specialization and co-operation which has taken place in recent years. Bulgaria, which had for a number of years been concentrating on general electrical engineering and loading/despatching equipment, has moved in the direction of computer electronics and precision engineering (see text table below), and is at present also placing emphasis on the expansion of communications and remote control equipment, tractors and shipbuilding. Output of computer and data processing equipment is to increase 2.5 times between 1975 and 1980, and a similar rate of growth is envisaged for communication and remote control equipment. The output of tractors is to rise from 5.1 thousand to 12.5 thousand units, and the volume of shipbuilding is to grow 2.8 times.

Structure of Bulgarian engineering output

	1965	*1970*	*Plan 1975*
Total	100.0	100.0	100.0
of which:			
Computers and automatic management and control systems	0.1	2.3	12.6
Precision engineering [a]	1.5	2.6	3.4
Radio and electronics	8.0	9.8	10.8
Electrical engineering [b]	14.1	14.5	12.7
Loading/despatching and transportation machinery	9.7	11.2	13.0

Source: Ekonomicheskaya Gazeta, No. 14, 1974.

[a] Including automatic control systems and medical instruments.

[b] Including household electrical appliances.

In Czechoslovakia sub-branches of engineering subject to special development programmes increased production by 74 per cent between 1970 and 1975, and the current plan foresees a growth of 65 per cent by 1980.[9] Included in these programmes are, among others, data-processing equipment, machine tools, textile machinery, leather and shoe machinery, telecommunications and medical equipment. In particular, rapid growth is currently foreseen for machine tools (75 per cent), with the emphasis on digitally controlled units, and electronics (100 per cent), on semi-conductors and medium and large integrated circuits. Reconstruction is also foreseen for the car industry in co-operation with the German Democratic Republic. Passenger-car production will, however, rise by only 17 per cent during the five-year plan period, output from new assembly lines being scheduled to start only in the 1980s. Czechoslovakia is also heavily engaged in the CMEA nuclear energy programme. It is to be expected that equipment related to this programme will become a significant element in the profile of the Czechoslovak engineering industry.

In the German Democratic Republic, the engineering industry has been characterized by a wide diversity of products, and development in recent years has been in the direction of reducing the range of products and expanding highly specialized lines of production such as specialized machine tools, machinery for open-cast mining, and equipment for canning and packaging for the chemicals and printing industries. On the sub-sectoral dimension, an above-average growth was witnessed in the last quinquennium in electronics (88 per cent), data-processing equipment (70 per cent), machine tools (56 per cent), agricultural machinery (54 per cent) and measurement and control apparatus (51 per cent). It seems that little change in the scale of priorities will take place under the present plan, machine tools, equipment for the plastics industry, agricultural machinery and electronics being singled out for significantly above-average rates of growth.

Of the six "central development programmes" on which industrial growth strategy in Hungary has been focused in recent years, two—motor vehicles and computer engineering—involve sub-branches of engineering.[10] Output of these expanded at an average rate of 10.0 and 11.3 per cent respectively between 1970 and 1975 as compared with a growth rate for engineering as a whole of 7.8 per cent. The output of the motor vehicle industry accounted for 28 per cent of engineering output in 1975, and its share is to rise further under the current plan.[11] Other priorities are indicated by the following figures (percentage increase):

	1971-1975	*Plan 1976-1980*
Total engineering	46	36-38
of which:		
Motor vehicles	61	55-60
Machine tools	..	60-65
Computers	71	60-75
Electronics	..	120-130
Automatic control instruments	..	55-60
Vacuum technology	..	120-130

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[9] The comparable figures for engineering as a whole are 49 per cent and 48-51 per cent respectively.

[10] The other four are energy, aluminium, petro-chemicals and the textiles and clothing industries.

[11] The main products involved are buses, diesel engines and spare parts. No passenger cars are produced. Instead Hungary supplies car components to other CMEA countries in exchange for which it receives assembled products.

In Poland very rapid growth took place in 1971-1975 in production of automatic and data-processing equipment, output of which rose more than four times. Growth was significantly above average for mining machinery, hoisting and lifting equipment, electronics and electrical machinery, and optics. The current five-year plan stresses greater specialization, with the emphasis on machine tools, power equipment, shipbuilding and chemical plants.

The development of Polish engineering

	Percentage share	*Percentage change in output 1971-1975*
Total	100.0	96
General machinery	28.1	100
of which:		
Mining machinery	2.6	143
Machine tools	2.1	113
Agricultural machinery	3.0	130
Hoisting and lifting equipment	1.9	146
Precision mechanisms	4.9	169
of which:		
Automatic and data-processing equipment	2.3	314
Optics	0.4	134
Transport equipment	31.0	78
of which:		
Motor cars	11.4	93
Shipbuilding	5.5	80
Electrical and electronic equipment	18.6	124
of which:		
Power equipment	4.4	91
Electronics	7.8	163
Electro-technical equipment	3.4	133
Metal-working	17.4	86

Source : National statistics.

In Romania engineering has become increasingly export-oriented in recent years. In addition to such traditional lines as oil extraction and refining equipment, emphasis has been placed on specialization in precision engineering and optical and measuring instruments. Greater self-sufficiency has been sought in machine tools, electrical and transport engineering, all of which are expanding very fast. The current plan calls in particular for a rapid expansion of the motor vehicle industry,[12] the electronics industry (2.2 to 2.5 times), the precision mechanisms and optics industry (2.5 to 3.0 times) and of the production of metal-cutting machines (2.4 to 2.6 times). The development of shipbuilding is also to be given greater attention, although no figures have been reported.

The *chemicals industry* plays—together with engineering—a key role in industrial and economic development. It was estimated, for instance, that around one-half of the increase in agricultural production and some two-thirds of the increase in that of light industry planned in the Soviet Union for the period 1976-1980 is to be obtained with the help of a wider application of chemical products. Synthetic resins and plastics serve as substitutes for metals, and are widely applied in advanced engineering, construction and packaging. Pharmaceuticals, cosmetics and other products turned out by this branch represent an important element in rising living standards and account for an increasing share of personal consumption.

The chemicals industry has been expanding fast in all the countries of the region. Through the years the rate of growth has been, on average, some 50 per cent higher than that of industry as a whole. Nonetheless, its share in total industrial production has tended to remain lower in the Soviet Union and the east European countries than in western countries at comparable levels of development. Differences have also tended to exist in the product mix of the industry, with a stronger orientation, in the east, towards producer than towards consumer goods. But even among products serving as inputs for other sectors and branches, the tendency in the east is for bulky, technologically unsophisticated products to predominate. One may take as an example the fact that, whereas in 1975 output of fertilizers in the Soviet Union was 30 per cent higher than in the United States, the output of resins and plastics was only 22.4 per cent and that of chemical fibres only 31.8 per cent of the United States level.

Improvement in product mix has, accordingly, been a major goal, dictated by both technological factors and the concern to raise living standards. The chemicals industry has, however, a very complex output structure, and there are no simple devices for measuring progress in this area. The plans for 1971-1975 generally set high growth rates for plastics and resins, and for chemical fibres—synthetic fibres in particular. Agro-chemicals were also given priority, and stress was laid on the raising of the nutritional content of fertilizers. Thus while the Soviet chemicals industry expanded production in this period at an annual rate of 10.5 per cent, output of mineral fertilizers rose at a rate of 9.9 per cent, and that of plastics and resins by 11.2 per cent (see appendix table). However, the latter rate was considerably below plan, and the growth rate of output of chemical fibres was just 8.9 per cent—actually below the branch average. The picture which emerges from the data for the east European countries is not much different (table 3.8). Only Hungary provides an exception.

As has already been mentioned, the chemicals industry is singled out in most of the countries of the region as the branch to grow fastest in the current five-year plan period. In the Soviet Union it is one of the two major branches for which growth will not slow down (table 3.6). Agricultural chemicals will continue to receive close attention, with the growth rate of output of chemical fertilizers being set at 9.7 per cent, which is very near the branch average.[13] The target for plastics and resins corresponds to a 15.1 per cent growth rate, but that of chemical fibres to the relatively modest rate of 8.8 per cent. Significant improvements are envisaged in the output structures of plastics and resins and chemical fibres.

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[12] Output of passenger cars is to increase from 56 thousand in 1975 to 150 to 170 thousand units in 1980.

[13] The nutritional content of the tonnage shipped is to increase from 35.6 to 40 per cent. The comparable figure for 1970 was 30 per cent.

TABLE 3.8

The chemicals industry: output of selected products

(Average annual percentage change)

	Bulgaria		Czechoslovakia		German Democratic Republic		Hungary		Poland		Romania	
	1971-1975	*Plan 1976-1980*	*1971-1975*	*Plan 1976-1980*	*1971-1975*	*Plan 1976-1980*	*1971-1975*	*Plan 1976-1980*	*1971-1975*	*Plan 1976-1980*	*1971-1975*	*Plan 1976-1980*
Total	11.6	12.1	9.9	6.5	8.4	7.6-8.2	10.5	9.2-9.4	12.3	10.9-11.2	15.7	15.3-16.6
Mineral fertilizers	7.6	13.2	8.0	. .	4.2	4.3-4.8	3.9	3.2-3.5	9.6	. .	14.1	13.8-15.1
of which:												
Nitrogen	5.8	13.5	6.6	. .	6.4	10.3-10.7	3.8	. .	8.3	6.9	14.8	. .
Phosphate	10.7	12.8	5.7	. .	−0.1	2.1	4.2	. .	9.2	7.9	10.6	. .
Potash	—	—	21.9	. .	4.5	3.1-3.7	—	. .	. .	. .	5.6	. .
Plastics and resins . . .	11.8	22.5	11.8	14.7	10.4	10.5-11.1	17.1	20.3	14.1	18.3	10.9	23.6
Synthetic and artificial fibres . . .	22.3	9.4-10.4	6.8	5.4	5.7	. .	15.9	6.9	9.7	3.0	15.7	14.3-15.7
of which:												
Synthetic	12.6	. .	17.1	. .	19.0	3.5-44	15.1	. .	17.8	. .	26.5	. .
Sulphuric acid	11.2	. .	2.3	5.9	−1.8	−1.8	6.5	1.0	12.4	3.2	7.8	. .
Caustic soda	12.8	. .	6.3	. .	1.3	. .	5.4	18.2-19.3	4.6	. .	11.4	. .
Soda ash	26.9	3.5	3.5	. .	4.4	. .	. .	. .	1.7	. .	3.5	. .
Pesticides	5.4	. .	5.0	. .	17.0	. .	25.9	. .	3.9	. .	7.7	. .
Tyres	13.6	. .	8.6	. .	6.0	. .	−1.5	. .	8.2	. .	8.6	. .
Pharmaceuticals	. .	. .	. .	. .	. .	. .	. .	10.0	. .	8.5	. .	. .

Sources: As for table 3.1.

In the east European countries also, continued emphasis is being given to agro-chemicals, although plan data are sketchy. Notable is the acceleration in the growth rate of plastics and resins which is planned everywhere. By way of contrast, the growth of output of chemical fibres is to slow down, except in Romania.

Growth and structural change in *light industry* and *food processing* are to a large extent interrelated. Foreign trade may be a modifying factor but, by and large, the growth proportion between these two industries—as well as shifts in their product mix—are determined by the pattern of domestic consumer demand. The income elasticity of demand for foodstuffs has tended to be higher in east European than in west European countries at comparable income levels, reflecting partly peculiarities in price interrelationships and partly structural differences in the supply of consumer goods and services. Within foodstuffs there has been a relatively high demand elasticity for meat. The income elasticity of demand for the products of light industry has been very close to that for foodstuffs, but altogether more variable. To a large extent it has depended on the ability of light industry to meet the demand for more sophisticated products and fashion goods as income has risen. Clearly, there was also some cross effect, with demand for the products of the two industries shifting according to the availability and assortment of supply.

The growth of light industry has tended through the years to be somewhat faster than that of the food industry. However, the growth relationship between the two industries has tended to vary sharply in the medium term, reflecting, among other things, the speed of structural innovation and quality improvement taking place in light industry. Thus, for instance, the rapid growth of light industry in the Soviet Union in the period 1966-1970, and the subsequent slow growth of this industry in the period 1971-1975, can be ascribed to a great extent to this factor. The apparently sluggish performance of light industry in Hungary 1971-1975, although partly due to a low level of external demand, was also related to this factor. By contrast, the over-fulfilment of the plan by light industry in Romania in the last quinquennium may well have been the result of a cross effect, namely the significant under-fulfilment of the plan for growth of output of foodstuffs.

Apart from modernization of equipment a qualitative improvement in light industry is tied to the quality of basic and auxiliary materials supplied to this industry—by the chemicals industry in particular. The great variety and complexity of material inputs involved calls for a particularly high degree of co-ordination of activities of producers and suppliers. On the other hand, the need for greater responsiveness to demand patterns necessitates closer co-operation between producing and trading organizations in the shaping of assortment and the design of products.

A notable feature of development in the last quinquennium has been the rapid growth of the output of processed meat. This ranged from a rate of 6.4 per cent per year in the German Democratic Republic to 11.1 per cent in Poland. In the latter country, however, and in Romania, notwithstanding accelerated growth, supplies were inadequate, and expansion of output remains a top priority for the present plan.

Output of processed meat

(Average annual percentage change)

	1966-1970	*1971-1975*
Bulgaria	5.6	8.1
Czechoslovakia	3.8	6.5
German Democratic Republic	4.2	6.4
Hungary	5.0	11.0
Poland	2.0	11.1
Romania	5.7	10.5
Soviet Union	6.4	6.7

B. ENERGY

As already noted in the discussion on the branch pattern of growth, the rate of expansion of the *electricity* and the *fuel* industries was generally lower in the period 1971-1975 than in the preceding quinquennium. The only exceptions were the Soviet fuel industry, which continued to expand at a rate of around 6 per cent, and the Polish electricity industry, where the rate of growth accelerated somewhat. Notably sharp declines in growth rate took place in the Bulgarian and Romanian electricity industries and in the fuel industry in Czechoslovakia.

Gross output of electricity and fuel branches

(Average annual percentage change)

	Electricity		*Fuel*	
	1966-1970	*1971-1975*	*1966-1970*	*1971-1975*
Bulgaria	13.2	5.3	15.3	8.5
Czechoslovakia	7.2	6.1	5.0	3.2
German Democratic Republic	5.7	4.9	5.0	4.4
Hungary	8.2	7.5	5.6	4.9
Poland	8.5	9.0	6.9	5.8
Romania	16.6	9.8	5.8	5.2
Soviet Union	9.0	7.1	5.7	5.9

The figures in the text table above refer to output measured in terms of value (at constant prices), and although the variety of products turned out by both branches is not large, it is nonetheless difficult to provide a complete identification of the structural elements that have accounted for the trends described.

The data assembled in table 3.9 indicate that changes in the growth rate of *electricity output in terms of kilowatt-hours* were not quite the same as the changes in the growth rate of the value output of the electricity branch.[14] Indeed

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[14] It should be noted that the output of this branch includes, apart from electricity, output of heat transmitted through central heating systems. Differences between indices of electricity output expressed in value at constant prices and those expressed in kilowatt-hours may also rise in connexion with differentiation of tariffs.

TABLE 3.9

Electricity production (A), consumption (B), and generating capacity (C)

	Volume in 1975[a]	*Annual average percentage change*			
		1961-1965	*1966-1970*	*1971-1975*	*Plan 1976-1980*
Bulgaria					
A	25.24	17.1	13.8	5.2	9.1
B	25.34	16.4	13.8	8.3	..
C	7.06	18.4	13.8	11.4	7.2
Czechoslovakia					
A	59.28	6.9	5.7	5.6	5.7
B	54.11	7.6	6.8	5.5	..
C	13.64	7.5	5.7	4.7	5.7
German Democratic Republic					
A	84.51	5.9	4.8	4.6	4.7
B	85.19	6.1	4.9	4.6	..
C	16.93	5.6	4.1	6.2	6.3
Hungary					
A	20.46	8.0	5.4	7.1	6.1
B	24.58	8.9	7.5	6.5	7.0
C	4.29	6.2	6.5	9.4	6.2
Poland					
A	96.86	8.4	8.1	8.4	6.6
B	96.65	7.9	8.3	8.4	..
C	20.06	8.9	7.5	7.6	7.3
Romania					
A	53.72	17.6	15.3	8.9	7.6
B	51.22	17.3	14.1	9.4	7.8
C	11.58	12.9	17.7	9.5	8.7
Soviet Union					
A	1 038.6	11.6	7.9	7.0	5.8
B	1 027.3	11.6	7.8	6.9	..
C	217.4	11.5	7.7	5.5	5.8

Sources: As for table 3.1.

[a] Production and consumption is in billions of kWh, capacity in thousands of MW. Production and consumption figures differ on account of net foreign trade position, of consumption at electric power stations, and of losses in transmission. There are differences between countries in the way in which gross electricity production is reported.

in Hungary the growth rate of electricity production in physical terms was faster in the years 1971-1975 than in the comparable preceding period. However, the decline in the growth rate of output in Bulgaria and Romania is equally well marked here.

In the Soviet Union, as in Bulgaria and Romania, this decline in the growth rate represented the continuation of a long-term trend. In Bulgaria the drop was steeper than might have been expected on this basis, but an upward adjustment back to the trend line is incorporated in the 1976-1980 plan. The present plans foresee a further falling off in the growth rate of electricity production in the Soviet Union, Romania, Hungary and Poland. In Czechoslovakia and the German Democratic Republic the growth rate will remain virtually stable for the third consecutive quinquennium.

Consumption of electricity continued to expand in the Soviet Union at a marginally slower rate than production, net exports rising from 5.2 to 11.3 billion kWh between 1970 and 1975 (table 3.10). However, the rate of growth of electric power generating capacity was only 5.5 per cent, pointing to an increased strain on supplies.[15] Among the east European countries a slower rate of growth of consumption than of production was witnessed in Hungary only. The growth of consumption significantly outstripped the growth of production in Bulgaria and—to a lesser extent—in Romania. A notable feature was the relatively rapid growth of electric power generating

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[15] It was planned that a total of 66,000 MW would be put into operation in the period 1971-1975. The actual figure was around 58,000 MW. Installed capacity rose during this period by 51,300 MW implying that some 7,000 MW were withdrawn from operation.

Table 3.10

Net imports of primary energy sources

	1965	*1970*	*1971*	*1972*	*1973*	*1974*	*1975*
Electricity (billions of kWh)							
Bulgaria	–	–	–	0.10	0.29	0.35	0.37
Czechoslovakia	0.74	3.41	4.39	3.60	4.35	4.60	4.07
German Democratic Republic	0.09	0.11	0.08	0.97	1.25	1.13	0.64
Hungary	1.19	3.33	4.22	4.38	4.61	4.41	4.15
Poland	–0.31	–	–0.21	–0.11	–1.48	–2.92	–0.51
Romania	–0.58	–2.33	–3.24	–3.56	–3.55	–2.89	–2.92
Eastern Europe	1.13	4.52	5.24	5.38	5.47	4.68	5.80
Soviet Union	–1.52	–5.20	–6.70	–7.10	–9.65	–10.89	–11.27
Eastern Europe and the Soviet Union	–0.39	–0.68	–1.46	–1.72	–4.18	–6.21	–5.47
Coal (millions of tons)							
Bulgaria	2.60	4.99	6.01	5.77	5.79	6.13	6.38
Czechoslovakia	1.99	1.57	2.11	2.23	1.82	1.45	1.52
German Democratic Republic	9.46	8.19	7.97	7.60	7.57	6.79	8.16
Hungary	2.79	2.21	2.00	1.87	1.64	1.61	3.07
Poland	–19.80	–27.69	–29.01	–31.49	–34.69	–38.86	–37.34
Romania	0.71	0.73	0.74	0.75	1.36	1.87	2.42
Eastern Europe	–2.25	–10.00	–10.18	–13.27	–16.51	–21.01	–15.79
Soviet Union	–15.70	–17.42	–16.58	–14.68	–14.54	–16.50	–16.32
Eastern Europe and the Soviet Union	–17.95	–27.42	–26.76	–27.95	–31.05	–37.51	–32.11
Crude oil and oil products (millions of tons)							
Bulgaria	3.51	8.42	10.02	10.58	9.65[a]	10.63[a]	10.46[a]
Czechoslovakia	5.71	10.08	11.56	12.61	14.52	15.51	16.17
German Democratic Republic	4.01	9.13	10.11	13.06	13.78	13.63	14.30
Hungary	1.96	4.11	5.01	5.40	6.44	7.18	8.11
Poland	4.43	7.01	7.89	9.70	11.14	10.58	13.31
Romania	–5.83	–3.08	–2.51	–2.22	–0.80	–1.96	–1.09
Eastern Europe	13.79	35.67	42.08	49.13	54.73	55.57	61.26
Soviet Union	–62.52	–91.15	–98.42	–97.89	–103.58	–111.79	–120.85
Eastern Europe and the Soviet Union	–48.73	–55.48	–56.34	–48.76	–48.85	–56.22	–59.59
Natural gas (billions of cu. m.)							
Bulgaria	..	..	..	..	..	..	..
Czechoslovakia	–	1.27	1.54	1.84	2.29	3.22	3.78
German Democratic Republic	–	0.12	0.08	–0.02	0.74	2.81	3.19
Hungary	0.20	0.20	0.21	0.20	0.19	0.19	0.80
Poland	0.20	0.44	0.41	0.43	0.35	0.36	0.40
Romania	–0.20	–0.20	–0.20	–0.20	–0.20	–0.21	–0.19
Eastern Europe	0.20	1.83	2.04	2.25	3.37	6.37	9.08
Soviet Union	–0.39	0.26	3.58	5.98	4.58	–2.10	–6.91
Eastern Europe and the Soviet Union	–0.19	2.09	5.62	8.23	7.95	4.27	2.17

Source: As for table 3.1.

Note: A minus sign represents an export surplus.

[a] Excluding oil products.

capacity in Bulgaria. This growth rate—11.4 per cent—was not only much higher than the growth rate of production, but was also significantly higher than that of consumption. It has provided ample reserves to meet current production targets. In the German Democratic Republic, Hungary and Romania also, capacity expanded faster than production, while in Czechoslovakia and Poland the opposite was the case.

A significant feature of developments in the years 1971-1975 was a narrowing down of inter-country differences in coefficients relating growth rates of electricity consumption to growth rates of net material product (table 3.11). A sharp decline in the growth elasticity of electricity consumption in relation to net material product can be seen to have taken place in Bulgaria, Poland and Romania. This brought the elasticities close to or below unity in all the east European countries. Only in the Soviet Union was there an increase in this coefficient. The current plans apparently envisage a reversal of this trend in most of the east European countries, the growth elasticity of electricity consumption in relation to net material product being scheduled to increase slightly.[16] In the Soviet Union it will apparently remain close to the level of 1971-1975.

A programme aiming at greatly reducing the use of oil as a fuel and shifting the pattern of fuel consumption in the generation of electricity in favour of solid fuel is under way everywhere. Nuclear power is being emphasized, and in the Soviet Union the development of hydro-power stations also. Out of a total of 71.0 thousand MW capacity to be put into operation in the period 1976-1980 in the Soviet Union, some 42.1 thousand MW are to be based on thermal, 15.2 thousand MW on hydro and 13.7 thousand MW on atomic power resources. This implies a decline in the share of thermal power from 78.8 to 74.0 per cent, an increase in the share of hydro-power from 18.6 to 19.3 per cent, and an increase in the share of atomic power from 2.6 to 6.7 per cent.[17] More detailed data on past and planned rates of growth of nuclear power capacity in the Soviet Union and the east European countries are shown in table 3.12.

In addition to the mining and extraction of fuels, the output of the fuel industry includes primary processing of the same and—the most important—oil refining. It is the last-mentioned component which in a number of countries accounted for the bulk of growth in the last quinquennium. Mining and extraction continued to expand at a rapid rate in the Soviet Union and in Albania. The rate of expansion was slower in Poland and Romania, and ranged between negative values and under 1 per cent in Bulgaria, Czechoslovakia, the German Democratic Republic and Hungary.

Primary energy output in terms of calorific content (including electricity from hydro and nuclear power stations) rose in the Soviet Union at a rate of 5.5 per cent in the years 1971-1975, somewhat faster than in the preceding quinquennium (table 3.13). The more rapid growth of coal output more than offset the effect of slower growth of output in the case of other major fuels. In the east European countries growth rates varied from minus 1.6 per cent in Bulgaria to an estimated 7 per cent in Albania, with no uniform pattern of change in the growth rate over time in evidence. Poland, the second largest producer in the region, expanded production at a rate of 4.1 per cent, about the same as the rate attained in the preceding five-year period. Coal output rose faster, but the gain was offset by a sharp deceleration in the output of natural gas. Among other features to be noted is the continued sharp increase in output of natural gas in the German Democratic Republic. Its share in the total of primary energy production rose from 1.9 per cent in 1970 to 12.4 per cent in 1975 (table 3.14). Growth of natural gas output in Hungary also increased the share of the sub-branch in total branch production from 19.8 to 28.2 per cent.

Changes in the rate of expansion of aggregate primary energy *consumption* in terms of calorific content did not follow a uniform pattern (table 3.13). In the Soviet Union this rate of expansion accelerated somewhat more than the rate of expansion of production—from 5.0 to 5.4 per cent in the period 1971-1975 by comparison with the previous quinquennium. There was a decline in the rate of expansion of net exports from 7.3 to 5.8 per cent.[18] Among the east European countries the pattern varied from a sharp slowdown in Bulgaria and Romania [19] to accelerated growth in the German Democratic Republic, Hungary and Poland. In Bulgaria and Romania the decline in the growth of electricity output was evidently a factor contributing to a large extent to the decline in the over-all growth rate of energy consumption. Changes in the elasticity of energy consumption in relation to net material product are shown in the following text table:

Ratio of growth rates of total primary energy consumption to growth rates of net material product

(Coefficients)

	1951-1970	*1966-1970*	*1971-1975*
Bulgaria	1.30	1.20	0.57
Czechoslovakia	0.80	0.45	0.50
German Democratic Republic	0.53	0.35	0.44
Hungary	1.01	0.41	0.66
Poland	0.74	0.71	0.52
Romania	1.03	1.13	0.49
Soviet Union	0.78	0.65	0.95

Sources : As for table 3.11.

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[16] For most countries there are no available data on planned electricity consumption. However, it may be assumed that production will not outstrip consumption to any large extent in any country.

[17] The capacity of thermal power stations is to increase by 25 per cent, that of hydro stations by 38 per cent, and that of nuclear power stations by around 3.5 times.

[18] Changes in exports and imports of total primary energy (excluding electricity) can be illustrated by the following figures (in millions of tons of standard coal equivalent):

	1965	*1970*	*1975*
Total exports	116.7	167.0	237.7
Total imports	9.1	14.1	35.1
Net exports	107.6	152.9	202.6

[19] And also, apparently, in Albania, if one can judge by incomplete data.

TABLE 3.11

Ratio of growth rates of total electricity consumption to growth rates of net material product (A) and of electricity consumption in industry to growth rates of industrial production (B)

(*Coefficients*)

Country	*1961-1965*	*1966-1970*	*1971-1975*	*Plan 1976-1980* [a]
Bulgaria				
A	2.49	1.59	1.05	1.08
B	1.49	1.29	0.65	..
Czechoslovakia				
A	4.22	0.96	0.98	1.12
B	1.31	0.88	0.67	..
German Democratic Republic				
A	1.74	0.91	0.85	0.91
B	0.98	0.68	0.68	..
Hungary				
A	2.17	1.10	1.05	1.09
B	1.03	1.00	0.72	..
Poland				
A	1.32	1.41	0.87	0.92
B	1.04	0.90	0.74	..
Romania				
A	1.84	1.83	0.83	0.74
B	1.23	1.14	0.84	..
Soviet Union				
A	1.73	1.01	1.21	1.23
B	1.24	0.81	0.83	..

Source: *CMEA Yearbook 1976*, five-year plan documents.

[a] Estimated on the assumption that consumption will grow in line with production, except for Hungary and Romania, for which countries specific plan data on consumption are available.

TABLE 3.12

Growth of nuclear generating capacity

	Capacity in MW			*Percentage of total capacity*			*Percentage of increment in total capacity*	
	1970	*1975*	*Plan 1980*	*1970*	*1975*	*Plan 1980*	*1971-1975*	*Plan 1976-1980*
Bulgaria	—	880	1 760	—	12.4	17.6	29.9	29.9
Czechoslovakia	—	150	1 910	—	1.1	10.6	5.3	40.4
German Democratic Republic	75	960	3 960	0.6	5.7	17.2	20.3	49.4
Hungary	—	—	440[a]	—	—	7.6	—	29.3
Poland	—	—	—[b]	—	—	—	—	—
Romania	—	—	880	—	—	5.0	—	14.6
Soviet Union	920	5 546	19 300	0.6	2.6	6.7	9.0	26.8

Sources: Press reports and secretariat estimates.

[a] This figure represents the initial capacity of the Paks station, scheduled to start production in 1980. Upon completion of the first stage the station will have a capacity of 1,760 MW.

[b] A 1,600 MW atomic power station is due to start operation in 1984.

TABLE 3.13

Growth of production and apparent consumption of major primary energy sources on the basis of data expressed in coal equivalent

(Annual percentage change)

	Production			Apparent consumption		
	1961-1965	*1966-1970*	*1971-1975*	*1961-1965*	*1966-1970*	*1971-1975*
Albania						
Total	2.6	12.9	ca. 7	5.1	16.3	. .
Coal	2.6	12.8	7.6	3.5	12.2	. .
Petroleum	2.4	12.6	4.2	6.2	18.1	. .
Gas	–	18.1	23.8	–	18.1	. .
Hydro and nuclear	15.6	13.3	. .	15.6	13.3	. .
Bulgaria						
Total	8.9	3.8	–1.6	15.5	10.4	ca. 4.5[a]
Coal	9.0	3.0	–1.2	12.8	5.4	0.3
Petroleum	2.8	7.8	–18.9	28.6	20.4	ca. 6.5[a]
Gas	–	46.0	–24.2	–	46.1	20.6
Hydro and nuclear	1.2	1.5	ca. 18	0.9	0.7	ca. 40
Czechoslovakia						
Total	3.0	1.5	0.5	4.6	3.2	2.8
Coal	3.2	1.5	0.5	3.7	1.3	0.6
Petroleum	7.0	1.1	–7.1	23.2	11.7	9.7
Gas	–7.7	4.5	–5.0	–7.7	21.1	13.7
Hydro and nuclear	12.3	–3.8	ca. 3	20.9	17.1	ca. 2
German Democratic Republic						
Total	1.9	0.9	1.1	3.0	1.9	2.4
Coal	1.9	0.5	–1.2	2.2	0.1	–1.8
Petroleum	–	2.3	–2.3	20.8	17.6	9.3
Gas	38.3	56.1	36.0	38.5	55.6	52.5
Hydro and nuclear	5.0	16.8	ca. 20	28.9	15.5	ca. 25
Hungary						
Total	5.4	1.1	0.9	6.6	2.8	4.1
Coal	4.0	–2.7	–1.8	4.7	–2.5	–1.9
Petroleum	8.7	1.4	0.7	13.3	10.0	10.8
Gas	25.7	25.6	8.3	19.2	22.9	10.3
Hydro and nuclear	–5.1	4.1	ca. 10	16.2	25.4	1.9
Poland						
Total	3.4	4.2	4.1	3.8	4.2	5.0
Coal	3.2	3.5	4.1	3.1	3.0	3.5
Petroleum	11.3	4.5	8.9	14.7	9.3	15.8
Gas	20.2	30.5	3.0	17.4	28.7	6.8
Hydro and nuclear	6.7	15.7	ca. 5	–14.0	25.7	–
Romania						
Total	7.1	6.3	3.2	10.0	8.7	5.5
Coal	7.6	11.2	3.0	7.8	12.0	4.4
Petroleum	1.9	1.2	1.8	5.9	8.8	5.6
Gas	13.0	7.4	5.7	13.2	7.5	5.7
Hydro and nuclear	20.4	22.5	ca. 25	13.0	–1.2	70.5

TABLE 3.13 (*continued*)

	Production			*Apparent consumption*		
	1961-1965	*1966-1970*	*1971-1975*	*1961-1965*	*1966-1970*	*1971-1975*
Eastern Europe						
Total	3.7	3.0	2.5	5.0	4.2	3.7
Coal	3.2	2.2	1.7	3.5	1.8	1.1
Petroleum	3.0	1.5	1.5	14.9	12.7	8.7
Gas	12.2	11.7	7.8	12.2	12.7	10.7
Hydro and nuclear	8.5	5.9	15.4	10.8	15.7	12.2
Soviet Union						
Total	7.5	5.2	5.5	6.6	5.0	5.4
Coal	2.1	1.0	2.5	1.6	0.9	2.7
Petroleum	10.4	7.6	6.7	8.6	7.5	7.0
Gas	23.0	9.2	7.8	23.1	9.3	7.3
Hydro and nuclear	9.8	10.5	ca. 2	9.4	10.1	ca. 2
Eastern Europe and the Soviet Union						
Total	6.3	4.6	4.7	6.0	4.7	4.9
Coal	2.5	1.5	2.1	2.4	1.3	1.9
Petroleum	9.9	7.3	6.5	9.4	8.3	7.3
Gas	21.0	9.5	7.9	21.0	9.8	7.9
Hydro and nuclear	9.7	10.1	3.0	9.7	10.8	2.7

Sources: World Energy Supplies 1950-1974, United Nations, New York, 1976. Some figures are secretariat estimates based on the methodology used in the above-mentioned publication.

Note: The figures in this table may differ from those found in national publications. This is mostly on account of different coefficients used to convert various sources of energy into coal equivalent. For the Soviet Union production of fuel from all sources (excluding hydro and nuclear energy) has been according to national estimates, as follows:

	In millions of tons of coal equivalent			*Annual percentage increase*		*Percentage distribution*		
	1965	*1970*	*1975*	*1966-1970*	*1971-1975*	*1965*	*1970*	*1975*
Total	966.6	1 221.8	1 590.3	4.8	5.4	100.0	100.0	100.0
of which:								
Coal	412.5	432.7	490.4	1.0	2.5	42.7	35.4	30.8
Oil	346.4	502.5	701.8	7.7	6.9	35.8	41.1	44.1
Gas	149.8	233.5	345.7	9.3	8.2	15.5	19.1	21.8
Peat	17.0	17.7	16.9	0.8	−0.9	1.7	1.5	1.1
Oil shale	7.4	8.8	11.7	3.5	5.9	0.8	0.7	0.7
Wood	33.5	26.6	23.8	−4.9	−2.2	3.5	2.2	1.5

[a] These figures are incomplete because of the absence of full information on imports.

The structural pattern of primary energy consumption continued to shift away from coal towards oil, and in a number of countries towards natural gas. In the Soviet Union, however, the shift towards oil and natural gas has slowed down perceptibly (table 3.14).

According to the current five-year plan, aggregate production of primary energy (excluding hydro and atomic power) in the *Soviet Union* is to expand at a rate of 5.4 per cent in the years 1976-1980, reaching a total of some 2.05 billion tons of fuel in standard coal equivalent. The growth of coal output (in tons) is to accelerate from a rate of 2.3 to one of 2.8 per cent, and of natural gas from 7.9 to 8.5 per cent. By contrast, there will be a decline in the growth rate of the output of crude oil from 6.8 to 5.4 per cent. Taken together, the share of hydro-carbons (oil and natural gas) in total primary energy production is scheduled to increase from 65.9 per cent to around 70 per cent. According to some pronouncements, this will mark the limit beyond which no further shift will take place in the more distant future.

Annual coal output is expected to rise from 701 million tons to 805 million tons 1975-1980. Around 60 per cent of the increment is to be obtained by open-cast mining with output by this method increasing by 27 per cent.[20] Development will start, during the plan period, of the huge Kansk-Achinsk deposits west of Lake Baikal, which will produce coal to provide fuel for the world's largest thermal power station (6,400 MW) to be constructed nearby. Work will also begin on a similar project at the Ekibastuz coal fields in Kazakhstan. As in the case of Kansk-Achinsk coal, the long-term potential here lies in huge electric power stations constructed at the site, output of which will be transmitted at high voltage to the European part of the Soviet Union.

The annual output of natural gas is scheduled to increase from 289 to 435 billion cu. m. 1975-1980, with net exports

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[20] In 1975, 225.7 million tons of coal were produced by open-cast mining or 32.2 per cent of the total. The share is to increase to 35.6 per cent in 1980.

TABLE 3.14

Production and apparent consumption of primary energy sources

(Percentage distribution total = 100)

	Production			*Apparent consumption*		
	1965	*1970*	*1975*	*1965*	*1970*	*1975*
Albania						
Coal	11.4	11.3	..	28.6	23.9	..
Oil	82.6	81.7	..	57.5	62.2	..
Gas	3.9	4.9	..	9.0	9.7	..
Hydro and nuclear	2.1	2.1	..	4.9	4.2	..
Bulgaria						
Coal	95.0	91.4	93.3	72.4	57.4	52.2
Oil	2.5	3.0	1.2	26.0	40.1	40.9[a]
Gas	0.7	3.9	1.3	0.5	1.9	4.1
Hydro and nuclear	1.8	1.7	4.2	1.1	0.8	2.8
Czechoslovakia						
Coal	97.1	97.0	97.2	87.0	79.1	70.9
Oil	0.4	0.4	0.3	10.7	16.0	22.1
Gas	1.7	2.0	1.9	1.5	3.4	5.7
Hydro and nuclear	0.8	0.6	0.6	0.8	1.5	1.3
German Democratic Republic						
Coal	99.5	97.5	86.8	93.3	85.1	69.0
Oil	0.2	0.2	0.1	6.4	13.0	18.0
Gas	0.2	1.9	12.4	0.2	1.7	12.4
Hydro and nuclear	0.1	0.3	0.7	0.1	0.2	0.6
Hungary						
Coal	81.1	67.0	58.3	74.2	56.9	42.2
Oil	12.3	13.1	13.4	19.3	27.1	37.1
Gas	6.5	19.8	28.2	5.9	14.6	19.4
Hydro and nuclear	0.1	0.1	0.1	0.6	1.4	1.3
Poland						
Coal	98.1	95.1	95.2	91.5	86.1	80.6
Oil	0.4	0.4	0.5	6.4	8.0	13.1
Gas	1.4	4.4	4.1	2.0	5.7	6.2
Hydro and nuclear	0.1	0.1	0.2	0.1	0.2	0.1
Romania						
Coal	13.7	17.0	16.9	20.2	23.3	22.1
Oil	40.0	31.3	29.0	25.1	25.1	25.2
Gas	46.0	51.2	52.7	54.6	51.5	51.8
Hydro and nuclear	0.3	0.5	1.4	0.1	0.1	0.9
Eastern Europe						
Coal	85.9	82.6	79.4	81.1	72.1	63.3
Oil	6.3	5.8	5.5	11.4	16.7	21.2
Gas	7.5	11.2	14.4	7.2	10.6	14.7
Hydro and nuclear	0.3	0.4	0.7	0.3	0.6	0.8
Soviet Union						
Coal	43.7	35.5	30.8	47.4	38.8	34.2
Oil	38.4	43.0	45.5	32.4	36.5	39.3
Gas	16.8	20.1	22.6	19.0	23.2	25.3
Hydro and nuclear	1.1	1.4	1.1	1.2	1.5	1.2

TABLE 3.14 (*continued*)

	Production			Apparent consumption[a]		
	1965	1970	1975	1965	1970	1975
Soviet Union and Eastern Europe						
Coal	55.4	47.7	42.1	58.1	49.1	42.7
Oil	29.5	33.4	36.2	25.7	30.4	34.0
Gas	14.2	17.8	20.7	15.3	19.3	22.2
Hydro and nuclear	0.9	1.1	1.0	0.9	1.2	1.1

Sources: As for table 3.13.

[a] Data on imports are incomplete.

expected to reach an estimated 40 billion cu. m. (up from some 7 billion in 1975). The bulk of the increase is to come from the West Siberian fields, where output is to rise from the present 38 billion cu. m. to 125 to 155 billion cu. m. As mentioned in the *Economic Survey of Europe in 1975*, the Orenburg gas pipeline, connecting gas-fields located near the Urals with pipe networks starting in Czechoslovakia is due for completion in 1978. Other projects include the creation of an automatically controlled central pipeline network system linking some regional systems.

The annual output of crude oil is to increase from 491 to 640 million tons 1975-1980, representing an annual rate of growth of 5.4 per cent. As in the case of natural gas, most of the increment in output will come from the West Siberian fields. Annual output from these fields is to rise from some 150 to between 300 and 310 million tons. It seems that the growth of net exports of oil and oil products will rise in line with the production of crude oil.[21]

In *Poland* output of hard coal is scheduled to increase from 172 to between 200 and 210 million tons, and that of lignite from some 40 to 80 million tons[22] between 1975 and 1980 (table 3.15). Total primary energy output will increase at an estimated rate of 4.5 per cent, somewhat faster than in the 1971-1975 period. However, in Albania and Romania, the two other countries which in the past quinquennium were able to expand production to a significant extent, growth will slow down, though both countries plan to double coal output. In *Albania* coal output accounts for about 10 per cent of primary energy production, and faster growth here will not compensate for slower growth in the output of crude oil, which accounts for the bulk of production. In *Romania* likewise, a more rapid growth of coal output will be outweighed by the fact that output of crude oil and natural gas will hardly increase. Total output of primary energy in this country will, it seems, increase at a rate of around 2.5 per cent as compared with a rate of 3.2 per cent in the period 1971-1975.

A considerable change in trends in output of primary energy may be expected to take place in *Bulgaria*. Following years of decline, coal output will increase in this country from 27.9 to some 37 million tons. This, together with the expansion of nuclear power, should raise production of energy in terms of calorific content to a level of some 35 per cent above that of 1975—an annual rate of 6.2 per cent. In *Czechoslovakia* also, the plan calls for a significant expansion of coal output. Although all of the expansion will be in low calorific brown coal, total primary energy production may well increase at a rate of nearly 2 per cent per year—if output of nuclear-generated electricity is included.

The German Democratic Republic and Hungary are the only countries in the area which do not envisage any large-scale expansion of coal output. In the *German Democratic Republic*, the rate of exhaustion of open-cast mining capacity is very high, and it has been stated that production capacity amounting to some 78 million tons will have to be replaced during the current five-year period. The output potential of operating mines will be expanded, but altogether coal output is expected to increase only marginally—from some 247 million to between 250 and 254 million tons. Although this represents a reversal of the 1971-1975 trend it will not be enough to maintain—still less to increase—the growth rate of total primary energy production. Output of natural gas has now reached a maximum level (some 8 billion cu. m. per year), and the planned expansion of output of nuclear power will not be sufficient to offset the effect of zero growth in gas output. In *Hungary* the plan foresees a halt in the decline in coal output, but no major new production facilities are to be opened up before 1980. Output of crude oil will also remain at the present level—some 2 million tons per year. Output of natural gas will, however, continue to expand and the growth rate of total primary energy output will be somewhat higher for the current quinquennium than it was for the 1971-1975 period.

Although output of primary energy will rise more rapidly than in the past, the growth rate of consumption

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[21] Net exports of oil and oil products rose at a rate of 7.8 per cent in the period 1966-1970, and at a rate of 5.7 per cent 1971-1975. The former figure is identical to the corresponding one for production growth, whereas the latter is lower.

[22] As in a number of other countries, low calorie brown coal is increasingly to be used for the production of electricity. Towards the end of the plan period the first stage of the Belchatow power complex should be completed. The latter is based on lignite deposits with estimated reserves of 2 billion tons. When completed—by 1985—the complex will supply an estimated 15.5 per cent of electricity needs.

TABLE 3.15

Production of coal in eastern Europe

(In millions of tons)

	1965	*1970*	*1975*	*Plan 1980*
Bulgaria				
Total	25.04	29.25	27.85	ca. 37
Hard	0.55	0.40	0.33	..
Lignite	24.49	28.85	27.52	..
Czechoslovakia				
Total	100.10	109.50	114.40	125
Hard	27.76	28.20	28.12	28
Lignite	72.34	81.30	86.27	97
German Democratic Republic				
Total	253.10	262.50	247.20	250-254
Hard	2.21	1.05	0.54	..
Lignite	250.80	261.40	246.70	..
Hungary				
Total	31.44	27.83	24.89	23.5-24.5
Hard	4.36	4.15	3.02	..
Lignite	27.08	23.68	21.87	..
Poland				
Total	141.40	172.90	211.50	280-290
Hard	118.80	140.10	171.60	200-210
Lignite	22.63	32.78	39.87	80
Romania				
Total	10.29	20.53	27.09	ca. 54
Hard	4.66	6.40	7.32	8
Lignite	5.63	14.13	19.77	46

Sources: CMEA Yearbook 1976, plans and plan-fulfilment reports.

will continue to exceed the growth rate of production in most east European countries. But even where the growth rate of output may catch up with that of consumption, as may be the case in Bulgaria, the increment in output will cover only part of the increment in consumption. The gap in absolute terms will widen, the balance being made up by imports.

In the east European countries taken together primary fuel output rose in the period 1971 to 1975 at a rate of 2.5 per cent, whereas consumption rose at a rate of 3.7 per cent. Between 1976 and 1980 production may be expected to rise at a rate of 3.0 per cent. The growth of consumption cannot be estimated with any degree of accuracy, but according to scattered pieces of information on planned imports and exports, a rough guess can be made that the national plans add up to a growth rate of some 3.5 to 4.0 per cent per year. This would imply an increase from some 566 million tons of coal in fuel equivalent to some 675 to 685 million tons, with net imports rising from some 90 million tons to 125 to 135 million tons. Net imports of gas are scheduled to increase by some 12 billion cu. m., the equivalent of about 15 million tons of coal. The rest of imports will be largely of oil and oil products, which on the basis of the above will have to increase to the level of some 80 million tons—up from 61.3 million tons in 1975.

4. INVESTMENT — TRENDS AND POLICIES

(i) Introduction

Levels of investment activity have tended to be maintained at a high level throughout the period under consideration in eastern Europe. In every country of the region except Bulgaria the *ratio of gross fixed capital formation to net material product* increased in the period 1971-1975 by comparison with the preceding five-year period, while it remained stable at a comparatively high level in Bulgaria (table 4.1). Chart 4.1 confirms, on the basis of annual data, an upward trend in the investment ratio for all countries except Bulgaria and the German Democratic Republic. On the other hand, the *average annual percentage change in the level of gross investment* fell in four countries—Bulgaria, the German Democratic Republic, Hungary and the Soviet Union—in the latter by comparison with the former period. This reflects the general easing of rates of change of NMP and other key variables. Chart 4.1 does, indeed, show considerable parallelism between rates of growth of NMP and those of investment for particular sub-periods. Only in the case of Poland, where the rate of growth was pushed up through a special investment effort in the period 1972-1974, were rates of growth of gross investment in 1971-1975 significantly higher than they had been in 1966-1970. As far as the present five-year period is concerned, it does not appear that any country foresees a further significant rise in the investment ratio, and Bulgaria and Poland foresee a significant drop, in the latter case by some 5 percentage points. Correspondingly, planned rates of growth of gross investment on the whole continue the trend of the previous five-year period.

The tendency over the period 1966-1975 was for *gross incremental capital-output ratios* to rise. The ratio remained at the same level in the German Democratic Republic, but fell in only two countries—Romania and Poland. These are the two countries that retain some basis for extensive development, and have been able to maintain, or very nearly maintain, double-figure growth rates (9.8 per cent in Poland and 11.3 per cent in Romania 1971-1975). For the period 1976-1980 estimates indicate that capital-output ratios are generally expected to rise somewhat.

What policy objectives lie behind these figures? Planning authorities are clearly concerned that the proportion of national income devoted to consumption should be stabilized, and this reflects a policy position which, as will be seen later on, has sectoral as well as macroeconomic implications. A no more than proportionate increase in the supply of inputs can be envisaged from the side of fixed capital. Against the background of increasing supply constraints in other fields, particularly with respect to manpower and raw materials, the significance of change-over from an extensive to an intensive pattern of development can be clearly perceived. There will be a tendency for capital to be substituted for labour, particularly in countries like the German Democratic Republic and Hungary, where growth in the labour force over the present five-year period is likely to be very small, but subject to the economical use of capital itself. The exploitation of highly capital-intensive raw material projects such as those being implemented on a joint CMEA basis in Siberia will, however, place strains on the supply of capital, even in the context of more modest growth targets. The external sector offers a possible means of adjustment but here too long-term plans and agreements have reduced the scope for flexibility. A further element which may heighten tensions appearing as a result of policy on consumption is the build-up of savings deposits (see text table in section 5, p. 116), which means that effective demand for consumer goods, particularly consumer durables, may be increasingly difficult to limit through wages and salaries policy. For all these reasons planners in all countries are concerned to extract the maximum possible return from each unit of invested capital. Putting this into a more general form, *investment efficiency* is a central issue in all the plans.

(ii) Trends and factors in investment efficiency

Firstly, it is necessary to look more closely at the factors which may tend, *ceteris paribus*, to push up capital-output ratios in the medium term.

In a number of countries, tasks of a *regional/locational nature* have been set which may have their full effect only in the very long run. In Czechoslovakia the capital city, Prague, is to be fundamentally reconstructed, while special attention is to be paid to environmental problems in the North Bohemian region. The share of the Slovakian Republic in total industrial production increased from 24 per cent in 1970 to 27 per cent in 1975, with a significant structural shift in favour of engineering and chemicals. But the current five-year plan foresees a continuation of the policy of above-average rates of growth and of structural change in Slovakia, with industrial production growing by 43 to 45 per cent (32 to 34 per cent for Czechoslovakia as a whole). As in the past two five-year periods, almost one-third of total investments will go to Slovakia.

In Romania the ten least developed counties increased their share of industrial fixed assets from 12.6 per cent to 27 per cent between 1965 and 1973,[1] but the gap with respect to levels of industrial production per head between the most developed and the least developed county (not counting Bucharest) is still of the order of 11 : 1.[2] The

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[1] M. Mănescu, "The national wealth of Socialist Romania", in *Revue Roumaine des Sciences Sociales, Série des Sciences Economiques*, No. 2, 1975, p. 142.

[2] I. Salapa, "Territorial-economic structures and international co-operation" in *Revue Roumaine des Sciences Sociales, Série des Sciences Economiques*, No. 1, 1976, p. 49 (in Russian).

TABLE 4.1

Gross fixed capital formation, capital formation ratios and incremental capital-output ratios

Country and period	*Gross fixed capital formation*		*Ratio of gross fixed capital formation to net material product*	*Gross incremental capital-output ratio*
	Billions of national currency units	*Average annual percentage change*		
Bulgaria				
1966-1970	3.1	12.5	35.1	4.0
1971-1975	4.3	8.6	35.1	4.5
Plan 1976-1980	5.6-6.0	5.4-6.9	30-32*	4.0*
Czechoslovakia				
1966-1970	77.5	7.2	31.1	4.5
1971-1975	111.7	8.2	33.7	5.9
Plan 1976-1980	160.0[a]	7.5	31-33	6.3*
German Democratic Republic				
1966-1970	27.2	9.9	27.6	5.3
1971-1975	36.6	4.1	28.7	5.3
Plan 1976-1980	48.3	5.7	29.1*	5.8*
Hungary			[b]	[b]
1966-1970	65.5	11.6[b]	32.9	4.8
1971-1975	114.9	7.1[b]	35.9	5.7
Plan 1976-1980	174.0	4.7[c]	36.5*	6.5*
Poland				
1966-1970	200.4	8.1	25.3	4.2
1971-1975	383.8	18.4	36.4	3.7
Plan 1976-1980	520-528[a]	6.5-7.0	31.1-31.3*	4.3-4.4*
Romania				
1966-1970	66.2	11.3	28.8	3.7
1971-1975	109.8	11.5	34.1	3.0
Plan 1976-1980	200.0	12.9	33-34	3.1-3.3*
Soviet Union				
1966-1970	70.8	7.5	27.0	3.5
1971-1975	100.3	6.9	29.9	5.2
Plan 1976-1980	124.3	4.7	29.5-30.1*	5.7-6.8*

Sources: National statistics; CMEA Statistical Yearbooks; plans and plan-fulfilment reports.

Note: Unless otherwise stated, all value data in tables in this section are at current prices for Bulgaria and Hungary and at constant prices for all other countries; all data for Hungary are for the socialist sector; all figures in value terms relating to five-year periods are annual averages; all planned annual rates of growth are calculated on the basis of the previous five-year period total.

[a] At current prices.

[b] At constant prices for the whole economy.

[c] At constant prices.

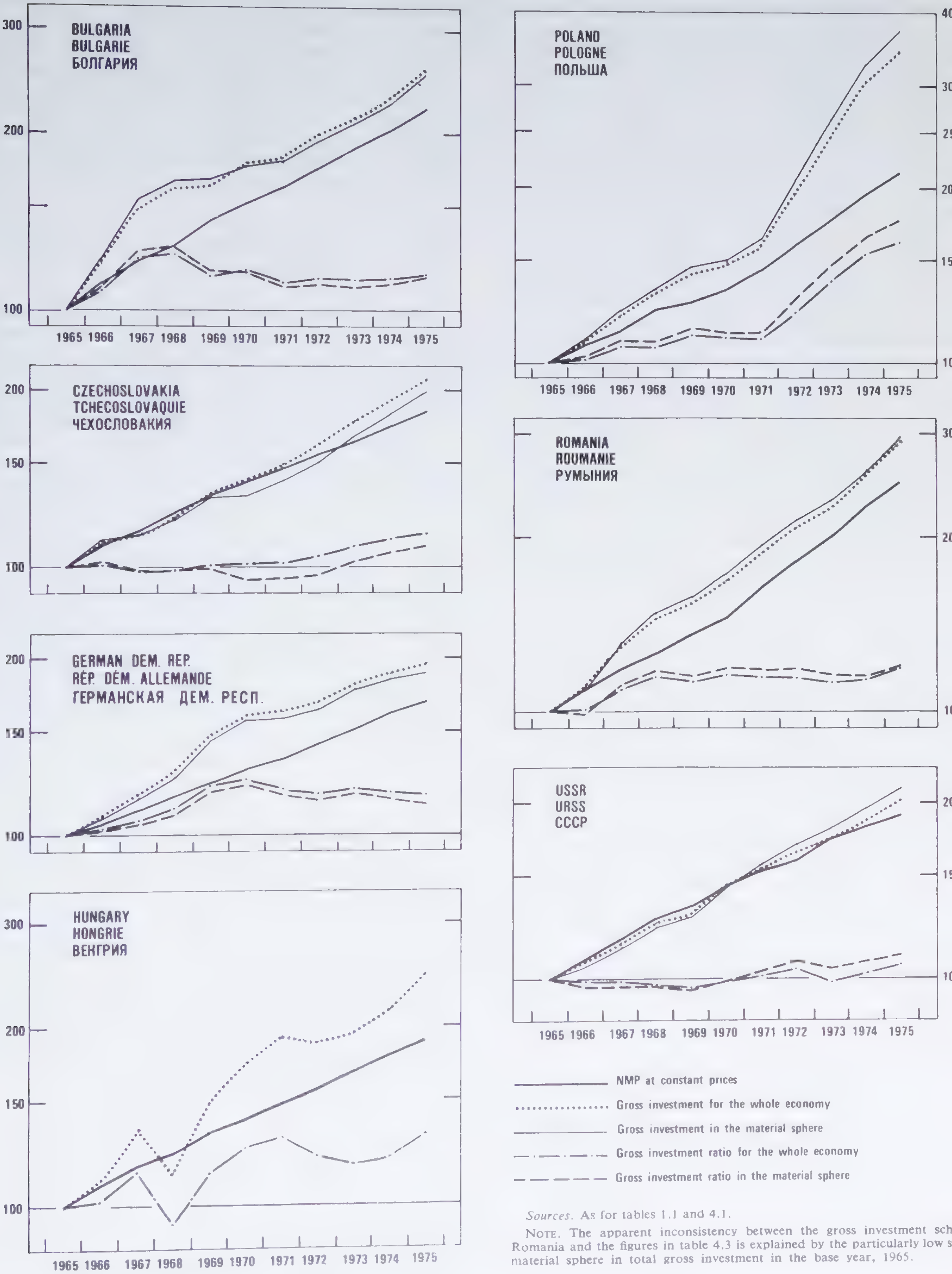
extent of emphasis on regional balance in the current five-year plan is reflected in the target of a 15 to 25 per cent rate of growth of industrial production for the less-developed counties, as compared with a corresponding planned figure for the country as a whole of 11 per cent.

The general tendency in 1966-1975 was for the share of industry in total investment to fall, but this trend is to be reversed in the period 1976-1980 in all countries for which data are available (table 4.3). What lies behind these figures is, above all, the switch in emphasis towards raw materials and fuel production which has occurred throughout eastern Europe, as in other industrialized areas. But this development is intimately connected with the regional/locational factors discussed above, particularly in the Soviet Union. It is the presence of unique deposits of minerals and coal, and of a colossal hydro-electric potential, in the eastern regions of the Soviet Union that has conditioned the path of development taken for these areas. The theme of the Soviet five-year plan with respect to the eastern regions is the

CHART 4.1

Changes in levels of NMP, gross investment, and in investment ratios

(Indices, 1965 = 100)



Sources. As for tables 1.1 and 4.1.

NOTE. The apparent inconsistency between the gross investment schedules for Romania and the figures in table 4.3 is explained by the particularly low share of the material sphere in total gross investment in the base year, 1965.

development of a number of *territorial-production complexes*—Bratsk-Ust-Ilimsk (power/wood processing), Sayan (power/aluminium/engineering), South Yakutia (coal/power), South Tadzhikistan (power/aluminium/chemicals), Noril'sk (nickel/copper/platinum) and others. Perhaps the best known is that based on West Siberian oil and gas, and the characteristic features of this project can be taken as illustrative of the general issues involved in the development of territorial-production complexes. The extent of deposits in West Siberia permits a scale of operations which must have a beneficial effect on current cost structures. At the same time, the largely virgin and often inhospitable nature of the area, and the special problems encountered in the part north of the permafrost line, where many of the richest deposits are located, mean that capital costs cannot but be high. In the middle Ob' area 25,000 roubles' worth of new investment in the non-material sphere is required for each new arrival. In the extreme north of West Siberia the figure is twice as high.[3] Again, there can be no systematic development in such a vast area without development of transport, and this is even more emphatically the case with the complexes lying further east. Top priority is being currently attached to the Baikal-Amur line (BAM), construction of which will continue through the present five-year plan, and which, when completed, will help to open up the riches of Eastern Siberia and the Far East. In particular, the development of the South Yakutian territorial-production complex will receive a major boost when it is reached by a branch of BAM in 1979. But in transport construction too, rough terrain and permafrost conditions push up capital costs.

The scale and pioneering nature of these projects has also created problems on the planning side, and the need to work out *unified, centralized programmes*, embracing all stages of projects from design to construction, has been stressed. The burning-off of accessory gas will stop in Western Siberia only when the Tobol'sk oil and chemicals complex starts production in 1979. The difficulties facing the builders of BAM have been exacerbated by supply problems, particularly with respect to construction materials. Problems of organizational co-ordination have been tackled in some cases, for example, in that of the KAMAZ complex, by giving general responsibility for all aspects of the given complex, including infra-structural, to a single organization. It seems likely that within the present plan period a special central organ will be created with over-all executive power and responsibility in the field of territorial-production complexes,[4] and this reflects a general trend towards a higher degree of central control in the investment field.

Thus capital construction in the eastern regions of the Soviet Union is expensive, and could not be otherwise, given the natural conditions. But improvements in territorial planning would make it less so, and potential economies of scale, and the richness of the deposits involved, make for very low operating costs. The cost of extracting (by the open-cast method) Kansk-Achinsk coal, for example, is five to six times cheaper than that of extracting pit-mined coal.[5] To say, then, that the current emphasis on these projects is likely to tend, *ceteris paribus*, to push up investment rates and incremental capital-output ratios in the medium term is not necessarily to question their long-term efficiency. Rather, it puts into perspective the concern shown in other aspects of investment policy in the material sphere with lowering capital-output ratios, through raising investment efficiency, the more so that emphasis within the non-material sphere is increasingly on *housing*, a form of investment highly capital-intensive, but likely to affect levels of productivity only in the very long run.

RECONSTRUCTION, MODERNIZATION AND EXPANSION OF EXISTING CAPACITIES

It is in the Soviet Union in particular that emphasis on re-working existing capacities has emerged as a major element in policy to increase the return on capital, with more than 92 per cent of the planned increase in production over the current five-year period to come from existing enterprises.[6] As can be seen from the text table on page 98, however, the current Bulgarian five-year plan also places very heavy emphasis indeed on reconstruction. The degree of stress placed on this aspect of policy, which is a form of "intensification", is intimately related to level of economic development. Thus in the German Democratic Republic emphasis was being placed on reconstruction as early as 1966, while in Romania the emphasis even at the present time is not heavy. A Bulgarian estimate suggests that the share of construction and assembly work in total investment expenditures can be reduced to 20 per cent through reconstruction.[7] The figures in the first two and final columns of table 4.2 indicate that this potential is far from being realized, though the general trend 1966-1975 was for an increase in the "active" component in investment.

Problems do exist with respect to reconstruction, perhaps the most serious being the question of making reconstruction work sufficiently attractive to construction enterprises, and sufficiently well organized that it is completed in reasonably quick time. In the Soviet Union the current policy emphasis is on developing "complex", i.e. large-scale, comprehensively planned reconstructions, and on including specific plans for reconstruction in the national plan,[8] another instance of how investment planning is tending to become more centralized. This brings up a much more general issue, and one that receives close attention in all the current five-year plan documents, namely that of the *length of the investment cycle*.

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[3] *Pravda*, 20 March 1976, p. 2.

[4] *Pravda*, 14 July 1976, p. 2.

[5] *Pravda*, 17 December 1976, p. 2.

[6] *Pravda*, 12 January 1977, p. 2.

[7] M. Boicheva, "Current problems of raising investment efficiency", in *Ikonomicheski Mis''l*, No. 4, 1976, p. 11 (in Bulgarian).

[8] S. Kas'yanov, "On raising the effectiveness of investment", in *Planovoe Khozyaistvo*, No. 11, 1976, pp. 74-75.

TABLE 4.2

Fixed capital formation by type of capital good; output and foreign trade of capital goods industries

(Average annual percentage change)

	Gross fixed capital formation		*Output of capital goods industries*			*Foreign trade in machinery and equipment*		*Percentage share in fixed capital formation*
Country and period	*Construction work*	*Machinery and equipment*	*Construction*	*Building materials industry*	*Engineering*	*Exports*	*Imports*	*Machinery and equipment*
Bulgaria								
1966-1970	10.2	13.7	12.0	10.3	16.1	18.1	13.1	37.2
1971-1975	4.4	12.9	5.8	11.1	13.0	19.5	12.0	37.2
Czechoslovakia								
1966-1970	7.1	7.3	7.9	6.9	9.2	7.9	9.0	38.1
1971-1975	7.8	8.8	8.2	6.6	8.4	10.3	16.1	38.8
Plan 1976-1980 . . .	. .	. .	6.2-6.5	7.0-7.3	8.2-8.6	. .	. .	. .
German Democratic Republic								
1966-1970	9.2	10.2	8.2[a]	6.1	7.1	8.6	17.5	52.8
1971-1975	4.9	3.4	6.2[a]	7.0	7.4	12.3	11.5	51.8
Plan 1976-1980 . . .	. .	. .	5.0	7.0-7.3	. .	. .	. .	. .
Hungary								
1966-1970	13.2	11*	10.7	5.3	7.7	7.5	11.6	41.5
1971-1975	4.8	8*	5.4	5.1	7.8	18.1	16.2	42.7
Plan 1976-1980 . . .	. .	. .	5.5-6.0	5.2-5.5	6.3-6.7	. .	. .	. .
Poland								
1966-1970	7.5	9.3	7.1	6.7	12.3	12.5	10.9	36.1
1971-1975	14.6	23.0	16.1	8.1	14.4	19.1	25.0	42.6
Romania								
1966-1970	10.5	12.9	11.5	13.0	15.8	15.5	12.9	38.2
1971-1975	8.0	17.0	7.0	10.0	18.1	14.4	13.1	43.5
Plan 1976-1980 . . .	. .	. .	. .	9.1-10.0	11.9-12.6	. .	. .	. .
Soviet Union								
1966-1970	7.0	7.6	7.4	8.5	11.8	11.0	9.1	30.4
1971-1975	6.5	7.7	6.0	7.3	11.6	13.2	13.2	31.4
Plan 1976-1980 . . .	. .	. .	7.2	. .	8.9	. .	. .	. .

Sources and notes: As for table 4.1.

[a] Including construction output of non-construction sectors.

Reconstruction, modernization and expansion of existing enterprises

Country and period	As percentage of total investment (Five-year average)	As percentage of total industrial investment (Five-year average)
Bulgaria		
1971-1975	24.1 [a]	21.3
Plan 1976-1980	70.0	..
Hungary		
Plan 1976-1980	43.0	50.0
Poland		
Plan 1976-1980	..	25.0
Soviet Union		
1966-1970	..	60.2
1971-1975	..	64.8
Plan 1976-1980	> 70.0	67.0

Sources: National statistics, plans and plan-fulfilment reports, press reports.

[a] Material sphere.

REDUCTION OF GESTATION PERIODS

Some of the five-year plans pose quite specific tasks in relation to this matter. The Bulgarian plan evisages a reduction in average gestation period for construction projects in the material sphere to 2 to 3 years, and for projects in manufacturing, agriculture, housing and amenities to 1 to 2 years. In the Soviet Union it is planned to cut unfinished construction as a proportion of the annual volume of investment to 65 per cent, and to push completions as a percentage of total investment up above 100, though, as the text table below shows, the highest figure achieved in this connexion in either 1966-1970 or 1971-1975 by any of the countries of the region was 95 per cent.

Share of completed investments in total gross fixed capital formation

Country and period	
Bulgaria	
1966-1970	87.4
1971-1975	85.0
Plan 1976-1980	100.0 *
Czechoslovakia	
1966-1970	92.7
1971-1975	94.6
Hungary	
1966-1970	88.9
1971-1975	93.5
Plan 1976-1980	93.0
Poland [a]	
1966-1970	93.7
1971-1975	82.4
Romania	
1966-1970	89.1
1971-1975	85.5
Soviet Union	
1966-1970	91.7
1971-1975	93.3
Plan 1976-1980	105.4

Sources: National statistics, plans and plan-fulfilment reports.

[a] Based on data for increase in stocks of fixed assets, which are not strictly comparable with figures for given fixed capital investment.

Some improvement in this indicator was noted in the period 1971-1975, by comparison with 1966-1970, in most countries, with the significant exceptions of Poland and Romania where, as noted previously, extensive growth factors still operate with some strength. In Bulgaria, too, the indicator worsened slightly. The most significant improvement took place in Hungary, where the number of large-scale investments was cut in 1971-1975 from 81 to 44. But significant further improvements in the situation will be dependent on the success of specific policy measures. Before going on to a discussion of these measures, it is necessary briefly to review the background of the problem.

In a period of extensive development, when investment rates are "forced", as a strategy for mobilizing un- or under-utilized sources, and when strong emphasis is placed on quantitative indicators for the same reason, there will be a tendency for the number of "starts" to be excessive, and for finishing to be neglected by construction organizations. Looked at more closely, however, the situation takes on a more complex form, with cause and effect running both ways. A rise in the number of uncompleted projects may induce an increase in the rate of investment in the attempt to raise the rate of completions. But "the change in the stock of incomplete investments is not simply a cause of growing investments, but also a consequence to a certain extent, while it may be a cause of the increments of investment in the next period. Every experience proves that a dynamic increase of investments is accompanied by a growing stock of incomplete projects. This is related to some extent also to the 'absorptive' capacity of the economy in a given period."[9]

At the most general level policy on gestation periods in most of the countries of the region has been oriented to *concentration*. As stated earlier, planning developments have tended to run in the direction of *centralization as a means of rationalization*. At the same time there has been an increasing tendency to introduce *financial constraints and procedures* into the lower levels of the investment planning process. This is calculated to reduce the incidence of "excess demand" for investment resources, and to make executive organizations less orientated to purely quantitative results.

In the Soviet Union the first step, taken soon after the 1965 industrial planning reform, was to introduce profit as a major plan indicator for construction enterprises, design organizations, etc. The emphasis since then has been on evolving an over-all indicator that would lay primary stress on *completion of projects*. By mid-1975 more than two-thirds of total contractual basis (*podryadnyi sposob*) construction work in the Soviet Union was being done by enterprises "on the new system".[10] Bank credit remains a fairly minor, though growing, source of investment finance—5.2 per cent of total state investments in 1976 and a corresponding planned figure of 9.3 per cent for 1977[11] —but bank advances as a basis for financing ongoing work on projects are becoming increasingly important, permitting the gradual elimination of the payment of advances to contractors by clients. In 1975, 41.8 per cent of total work handled by *Stroibank* was on the basis of payment for completed projects only.[12] The work of design organizations too is programmed for full transferal to credit principles by 1980.[13]

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[9] I. Berend, "Long-range development policy—interrelations between economic development and capital intensity", in *Acta Oeconomica*, No. 3/4, 1974, p. 348.

[10] *Ekonomicheskaya Gazeta*, No. 23, 1975, p. 9.

[11] V. F. Garbuzov, "The budget for the second year of the five-year period", in *Finansy SSSR*, No. 12, 1976, p. 13.

A more general aspect of policy which relates to this question is the progressive transferal of intermediate planning bodies to *khozraschet*. This development can be expected to curb the tendency to overbid for investment resources on the part of intermediate planning bodies. Of more direct relevance to construction is the transferal of the Byelorussian Ministry for Industrial Construction on to *khozraschet*, though this experiment has been hampered by the continued coexistence of "old" and "new" indicators.[14]

It may be expected then, that these various policy measures will, or will continue to, exert pressure on gestation periods, though the experience of Hungary in the early 1970s, when an increased reliance on financial controls and indicators was accompanied by an increase in the excess demand for investment, underlines the complexity of the issue. It has been argued that in the Hungarian case the "insufficient separation of micro-economic from macro-economic decisions in the field of investment . . . caused the pressure of enterprises and industries on the central (functional) organs for investments to persist".[15] This may point to the key importance of general reform, through the *ob"edinenie* or similar systems, of the planning and management hierarchy.

COST FACTORS IN INVESTMENT EFFICIENCY

All the five-year plans aim to reduce the unit cost of investment and increase the degree of utilization of equipment. The German Democratic Republic plan aims to reduce idle time by 18 to 20 per cent, and in Hungary the scope and level of special rates for shift work are being increased. In the Soviet Union the shift coefficient is to be increased by 20 to 30 per cent. Attention is also being given to reserves of uninstalled equipment. At the beginning of 1976 above-plan reserves of uninstalled equipment in the Soviet Union came to 36 per cent of all equipment.[16]

Turning to the construction process itself, it is noteworthy that in the Soviet Union explicit targets for *cost reduction* are being set for building enterprises.[17] The situation in the other countries may not be formally identical, but there can be no doubt that emphasis on reducing construction costs is an important policy element throughout eastern Europe. The September 1976 meeting of the Romanian Central Committee, for example, stressed that many projects have excessive dimensions and are excessively material-consuming. General reforms in the planning and management of design and construction, mentioned earlier in connexion with the drive to shorten gestation periods, will surely also have an effect on the costs side. Organizational departures at the enterprise level of construction, like the Zlobin method of brigade *khozraschet*, strongly emphasized in the Soviet Union and the German Democratic Republic, and the general introduction of advanced managerial techniques like continuous planning, which is receiving particular attention in the Soviet Union and Bulgaria, and is already well-developed in other CMEA countries, must likewise be expected to play an important role in keeping costs down.

The success of these latter measures must, however, be ultimately dependent on improvements in the actual technology and material basis of construction. The aim in its most general form is the *industrialization of construction*, including complex supply and maximally economical utilization of the most advanced materials. As table 4.2 indicates, the rate of growth of output of the building materials industry has sometimes fallen behind that of the construction industry—dramatically in the case of Poland—and sometimes overtaken it, most clearly in the case of Romania. Table 4.4 shows more systematic emphasis for the period 1971-1975 on the building materials industry, with the share of industrial investment going to that sector rising by comparison with the previous five-year period in all countries except the German Democratic Republic. On the other hand, a comparison of the relevant data from tables 4.5 and 4.6 shows that over the period 1965-1975 there was no general tendency for building materials to "catch up" in terms of fixed assets, in relation to other industries. The plan figures for output of building materials for 1976-1980, in the cases where we dispose of them, are fairly ambitious, and in most cases higher than the corresponding figures for construction output. This no doubt reflects the intention to maintain, and perhaps intensify, investment flows into building materials. Table 4.7 shows a strong tendency over the past ten years for construction enterprises to become better equipped, particularly in relation to numbers of workers, and the same tendency emerges clearly from the capital stock figures. Nevertheless the construction sector remains unevenly equipped, and will no doubt remain a top priority for investment in 1976-1980. Finally, increased investment in this sector has tended to produce less than commensurate results in terms of output, and this may reflect the two-way nature of the relationship between organizational efficiency and level of technology.

(iii) Sectoral trends in gross fixed capital formation and fixed funds

In all countries except Poland and the Soviet Union the *share of the material sphere* in total investment fell in 1971-1975 by comparison with 1966-1970. (Table 4.3 and chart 4.1.) This reflects the shift in emphasis towards social consumption which has been as strong, if not

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[12] A. V. Brezhenko, "Mobilization of reserves in construction", in *Finansy SSSR*, No. 10, 1976, p. 11.

[13] *Pravda*, 13 February 1976, p. 3.

[14] *Ekonomicheskaya Gazeta*, No. 48, 1975, p. 9.

[15] K. A. Soós, "Causes of investment fluctuations in the Hungarian economy", in *Közgazdasági Szemle*, No. 1, 1975 (in Hungarian).

[16] Brezhenko, *op. cit.*, p. 13.

[17] *Ekonomicheskaya Gazeta*, No. 42, 1976, p. 9.

TABLE 4.3

Gross fixed capital formation by main sectors of the material and non-material spheres

(Percentage distribution of five-year period totals)
Total gross fixed capital formation = 100

	Material sphere						*Non-material sphere*				
Country and period	*Total*	*Agriculture*	*Industry*	*Construction*	*Transport*	*Other*	*Total*	*Housing*	*Education*	*Health*	*Other*
Bulgaria											
1966-1970	78.4	17.0	45.9	3.1	9.2	3.2	21.6	9.5	3.8	1.5	6.8
1971-1975	75.5	15.8	41.5	3.9	11.1	3.2	24.5	10.3	4.6	1.5	8.1
Czechoslovakia											
1966-1970	73.6	11.9	39.0	3.5	13.9	5.3	26.4	14.6	4.2	1.8	5.8
1971-1975	70.5	11.5	36.8	4.0	13.4	4.8	29.5	16.4	4.7	2.1	6.3
German Democratic Republic											
1966-1970	83.3	14.1	51.0	3.1	9.1	6.0	16.7	6.4	....	10.3	....
1971-1975	82.8	12.6	53.4	2.7	9.2	4.9	17.2	7.0	....	10.2	....
Hungary											
1966-1970	79.6	15.9	39.2	2.6	14.0	7.9	20.4	7.0	3.9	3.0	6.5
1971-1975	76.0	13.0	36.9	2.5	12.8	10.8	24.0	9.2	4.7	3.2	6.9
Plan 1976-1980 . . .	76.0	12.2	39.7	2.2	12.2	9.7	24.0	. .	. .	. .	. .
Poland											
1966-1970	75.0	16.4	39.4	4.0	11.2	4.0	25.0	15.5	3.8	1.8	3.9
1971-1975	78.7	14.0	43.8	5.1	11.4	4.4	21.3	13.0	2.8	2.1	3.4
Romania											
1966-1970	86.4	15.9	52.6	4.1	10.8	3.0	13.6	5.3	2.1	1.3	4.9
1971-1975	83.5	14.4	50.5	4.7	10.1	3.8	16.5	9.2	1.8	1.0	4.5
Plan 1976-1980 . . .	85.2	11.7	58.0	3.4	9.5	2.6	14.8	8.2	..... 3.0	.....	3.6
Soviet Union[a]		[b]									
1966-1970	65.2	17.0	35.6	3.4	9.2	–	34.8	17.0	....	17.8	....
1971-1975	69.4	19.9	35.3	3.8	10.4	–	30.6	15.1	....	15.5	....
Plan 1976-1980 . . .	. .	21.1*	39.4	. .	. .	. .	. .	16.1	. .	. .	. .

Sources and notes: As for table 4.1.

[a] Equipment of schools, hospitals, etc., excluded. Forestry included under Education/Health/Other.

[b] Corresponding figures for total agro-industrial complex are, respectively, 23.2, 26.2 and 27.6.

stronger, than that towards individual consumption. It is interesting, however, to compare these trends with those in fixed assets. In all cases the material sphere continued to increase its share of total fixed assets throughout the period 1965-1975. It is difficult to give a full interpretation of these figures. Differential scrapping rates may have something to do with them, but there is a strong suggestion that gestation periods are longer in amenity investments, so that a considerable proportion of investment in the *non-material sphere* in the recent period has not yet "shown up" in the fixed assets figures. A tendency for capital costs to exceed planned levels by a considerable amount in the non-material sphere may also be a factor. In Bulgaria, in the period 1971-1974, new homes were costing 9,050 leva each to build, as against a planned average cost of 6,550 leva.[18]

Turning to a consideration of the main sectors within the material and non-material spheres, it is noteworthy that for *industry* the tendency for the share of investment going to the sector to drop, 1971-1975 by comparison with 1966-1970, is not reflected in the fixed assets figures at all. To the extent that lags are a factor here there may, then, be a tendency for industrial fixed assets to respond sluggishly to the increased share of investment planned for 1976-1980. Turning to the switch in emphasis towards fuel and basic materials branches, which dates from 1973, it is only for the German Democratic Republic that the shift is evident in the 1971-1975 figures. The planned figures for 1976-1980, however, in the two cases where they are available, namely those of the Soviet Union and Hungary, indicate an adjustment of major consequence. In Hungary, a country traditionally poor in raw materials, almost 50 per cent of total industrial investment is to go into electricity, mining, metallurgy

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[18] *Ikonomicheski Zhivot*, 2 June 1976, p. 12.

TABLE 4.4

Gross fixed capital formation in industry and by industrial branches

Country and period	Billions of national currency units	Percentage distribution by industrial branches, total industry = 100									
		Electric power	Fuel	Metallurgy	Engineering	Chemicals, rubber	Building materials	Wood, pulp, paper	Light industry	Food processing	Other
Bulgaria											
1966-1970	1.4	14.2	9.5	8.1	17.1	15.7	5.0	4.2	6.0	9.6	10.6
1971-1975	1.8	14.7	6.5	5.9	19.5	16.8	6.9	4.8	5.4	8.9	10.6
Czechoslovakia											
1966-1970	30.2	11.1	9.9	10.7	17.7	12.4	6.0	4.7	9.0	7.0	11.5
1971-1975	40.5	12.7	9.7	7.8	18.3	11.7	6.6	5.7	8.4	7.3	11.8
German Democratic Republic											
1966-1970	13.8	..... 21.8		5.9	24.8	20.8	4.4	..... 10.0		6.4	5.9
1971-1975	19.5	..... 25.8		5.3	22.3	19.8	4.0	..... 11.6		6.4	4.8
Hungary											
1966-1970	26.1	12.5	14.5[a]	11.2	18.4	16.2	6.6	..... 10.0		9.7	0.9
1971-1975	41.5	13.2	9.7[a]	7.7	16.3	18.8	8.6	..... 13.3		11.2	1.2
Plan 1976-1980 ...	69.0	.... 49.3[b]			. .	. .	. .	. .		. .	. .
Poland[c]											
1966-1970	78.7	10.1	16.5	11.7	19.0	15.9	6.0	3.9	5.9	8.7	2.3
1971-1975	167.9	8.7	13.2	13.3	23.5	10.5	6.3	4.0	7.6	10.6	2.3
Romania											
1966-1970	33.1	14.7	16.2	13.6	14.6	13.8	5.3	6.2	5.1	6.5	4.0
1971-1975	55.5	13.6	12.3	11.8	20.3	16.1	5.8	5.3	5.3	6.1	3.4
Plan 1976-1980 ...	116.1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Soviet Union											
1966-1970	125.7	11.4	18.8	8.3	18.7	9.0	5.7	4.9	4.5	8.5	10.2
1971-1975	177.0	10.1	18.5	7.8	21.7	9.1	5.7	4.8	4.4	7.8	10.1
Plan 1976-1980 ...	244.6	12.9	19.7	7.7	25.9	12.9	. .	. .	. .	. .	. .

Sources and notes: As for table 4.1.

[a] Mining.

[b] Electric power, mining, metallurgy and building materials.

[c] Socialist sector.

and building materials. (The corresponding figure for 1971-1975 is 39 per cent.) In the German Democratic Republic about one-third of total investments, representing about 60 per cent of total industrial investment, will go into electricity and raw materials production. In Czechoslovakia about one-third of industrial investments will go into electricity and fuel. In Poland the huge Katowice steelworks started production in 1976, and when it reaches full capacity will produce 42 per cent of the total steel output of Poland. It has been suggested that without this development Poland would by 1980 be importing 3 billion dollars worth of steel annually. As might be expected, coal will play a large role in Poland's fuel policy during the current five-year plan, and it is interesting that as much as 70 per cent of investment outlays in this sector will be on modernization and expansion of existing pits. In Romania the giant Galați steelworks went into full operation in 1975 and its output will double over the period 1976-1980. As far as the Soviet Union is concerned the pioneering projects discussed earlier form the main element in the shift. Major raw material projects in the old-established industrial areas of the country include the Kursk territorial-production complex (ferrous metallurgy).

It is more difficult to make generalized statements about other branches. Chemicals, often closely related to agricultural projects, will be a focus of attention in a number of countries, particularly the Soviet Union. The increased attention paid to this sector in the recent period emerges more clearly from the fixed assets than from the investment figures. Different sub-sectors of engineering may be singled out for special treatment in different countries, e.g. electronics in Bulgaria and construction equipment in Poland. No data appear to be available on projected investments in light industry

TABLE 4.5

Fixed assets by main activities

(End-year data)

Country and year	Billions of national currency units	Percentage distribution, total fixed assets = 100								
		Material sphere						Non-material sphere		
		Total	Agriculture	Industry	Construction	Transport	Other	Total	Housing	Other
Bulgaria										
1965	21.6	58.5	14.1	27.1	1.3	14.1	1.9	41.5	30.0	11.5
1970	32.9	64.4	13.2	33.7	1.9	13.4	2.2	35.6	23.6	12.0
1975	48.1	67.6	12.4	36.3	2.3	13.7	2.9	32.4	19.9	12.5
Czechoslovakia										
1965	1 241.9	65.3	7.6	33.9	1.6	18.2	4.0	34.7	23.9	10.8
1970	1 499.4	66.6	7.9	34.7	2.0	17.6	4.4	33.4	22.5	10.9
1975	1 950.2	66.7	8.2	35.0	2.4	16.3	4.8	33.3	21.9	11.4
German Democratic Republic[a]										
1965	392.6	55.4	7.1	33.2	1.2	10.2	3.7	44.6	..	..
1970	466.7	59.1	7.9	35.9	1.6	9.8	3.9	40.9	..	..
1975	576.9	63.6	8.1	39.8	1.8	9.7	4.2	36.4	..	..
Hungary[b]										
1965	967.0	56.1	8.1	22.2	0.7	18.1	7.0	43.9	32.7	11.2
1970	1 210.5	58.9	9.3	24.8	1.0	16.9	6.9	41.1	29.5	11.6
1975	1 641.3	62.3	11.5	26.8	1.4	15.0	7.6	37.7	26.7	11.0
Poland										
1965	3 218.0	54.5	15.8	24.3	1.2	11.1	2.1	45.5	32.2	13.3
1970	4 030.0	58.1	15.5	25.6	1.6	11.1	4.3	41.9	29.2	12.7
1975	5 353.0	62.2	15.3	29.0	2.3	11.0	4.6	37.8	25.5	12.3
Romania										
1965	517.0	61.7	13.5	..... 33.7		12.1	2.4	38.3	..	..
1970	757.0	68.5	12.6	..... 39.8		12.8	3.3	31.5	..	..
1975	1 186.0	72.1	11.4	..... 44.8		12.5	3.4	27.9	..	..
Soviet Union										
1965	600.0	59.9	12.8	27.9	2.0	13.8	3.4	40.1	26.5	13.6
1970	858.0	61.7	12.3	29.7	2.5	13.6	3.6	38.3	23.8	14.5
1975	1 258.0	64.1	13.4	30.6	2.8	13.6	3.7	35.9	21.1	14.8

Sources and notes: As for table 4.1.

[a] Figures are annual averages.

[b] At constant prices for the whole economy. Data are for 1 January of given years.

and light engineering, and there may be some question as to whether the need to concentrate on development of fuel and raw materials sectors may not make it difficult to release sufficient inputs to meet the demand for consumer durables.

The share of total investment going to *agriculture* fell in all countries in the 1971-1975 period, compared with that of 1966-1970, except the Soviet Union. The already high rate of investment in agriculture and associated activities in that country is to be further raised in the coming five-year period, though once again the fixed assets figures suggest that this investment effort has still not had its full operational effect. Poland too, plans to place special emphasis on agriculture and food in the current five-year period, with investments into agriculture and allied sectors to increase by 7 per cent per annum.

In *transport* trends are mixed, but in Poland this sector has been accorded a very high priority indeed for the current five-year period. Almost 3,000 kilometres of railway line are to be electrified by 1980, a new rail container depot is to be completed at Szczecin in 1978, and a vast complex of works on the port of Gdynia and the Odra waterway are in progress, some with an horizon beyond 1980. In Bulgaria too, transport has been receiving special emphasis since 1971, though this has still to show up in the fixed assets figures. For the period 1976-1980 three motorways are scheduled for construction. Containerization is to be developed further, and it is planned that by the end of 1980 as much as 90 per cent of cargoes will be handled mechanically. It is interesting that no less than 75 per cent of total investments planned in Bulgaria for transport in 1976-1980 is earmarked for reconstruction and expansion.

TABLE 4.6

Fixed assets by industrial branches

(End-year data)

Country and year	Billions of national currency units	Percentage distribution, total industry = 100									
		Electric power	Fuel	Metallurgy	Engineering	Chemicals, rubber	Building materials	Wood, pulp, paper	Light industry	Food processing	Other
Bulgaria											
1965	5.8	15.6	12.3	9.0	11.1	8.2	6.1	5.2	7.6	10.8	14.1
1970	11.1	13.4	13.0	13.1	12.7	11.4	5.8	7.1	7.1	10.4	9.0
1975	17.4	13.4	9.9	9.6	14.6	12.9	6.1	4.7	7.0	3.8	12.0
Czechoslovakia											
1965	420.7	10.7	12.6	14.5	18.1	5.9	3.9	3.3	7.6	6.9	16.5
1970	520.4	10.6	12.5	14.5	18.1	6.8	4.3	3.5	7.8	6.6	15.3
1975	683.0	11.0	11.7	12.9	18.5	7.5	4.9	4.2	8.2	6.5	14.6
German Democratic Republic[a]											
1965	132.4	..... 24.8		5.7	19.0	17.7	3.7	..... 13.0		6.9	9.2
1970	170.0	..... 23.9		5.9	20.1	18.8	3.6	..... 11.9		7.1	8.7
1975	231.0	..... 23.5		5.7	21.1	19.7	3.6	..... 11.9		7.0	7.5
Hungary[b]											
1965	214.2	..	..	..	..	..	..	..	..	..	..
1970	299.7	..	..	..	..	..	..	..	..	..	..
1975	439.1	..	..	..	..	..	..	..	..	..	..
Poland[c]											
1965	661.0	12.8	18.3	10.1	16.0	9.8	6.7	4.4	7.3	11.3	3.3
1970	968.0	12.8	16.7	11.0	17.5	11.7	6.0	4.2	6.6	10.2	3.3
1975	1 550.0	12.3	13.4	11.0	20.9	11.3	5.5	4.0	7.1	10.5	4.0
Soviet Union											
1965	167.0	14.9	13.9	10.6	19.0	8.3	6.4	5.6	4.4	9.2	7.7
1970	254.0	17.4	13.1	10.4	20.0	8.9	5.7	5.1	4.6	8.0	6.8
1975	384.0	16.6	12.6	9.8	21.2	9.4	5.8	4.9	4.5	7.9	7.3

Sources and notes: As for table 4.1.

[a] Figures are annual averages.

[b] At constant prices for the whole economy. Data are for 1 January of given years.

[c] Socialist sector.

As already noted, one of the key sectors involving the standard of living of the population, in the last five-year period and even more so in the current, is *housing*, and the text table below amplifies the data presented in tables 4.3 and 4.6.

While house-building continues to proceed at a high absolute level in the Soviet Union, it is in the other east European countries that the sector represents a particular growth point. In Romania, for instance, additional undertakings have been made to build 160,000 flats over and above the planned total for 1976-1980. The scale of the problem is indicated by the fact that the share of housing in total fixed assets has continued to fall in all countries for which data are available throughout the period 1966-1975, and this is clearly the main element in the tendency, discussed earlier, for the share of the non-material sphere in total fixed assets to fall.

Dwellings constructed

(Thousands)

	1966-1970	Plan 1971-1975	1971-1975	Plan 1976-1980
Bulgaria	222	250	242	420
Czechoslovakia	439	500	615	640
German Democratic Republic[a]	297	385	400	550
Hungary	327	400	438	430-440
Poland	942	1 075	1 137	1 575
Romania[b]	648	522	752	815
Soviet Union	11 333	11 373*	11 224	11 331*

Sources: As for table 4.1.

[a] 209,000 existing dwellings were modernized in 1971-1976 (plan—115,000) The corresponding plan figure for 1976-1980 is 200,000.

[b] Flats only.

TABLE 4.7

Gross output and factor inputs in construction

(Average annual percentage change)

Country and period	Gross output		Employment	Fixed assets	Per employee		Gross output per unit of fixed assets
	Plan	Actual			Gross output	Fixed assets	
Bulgaria							
1966-1970	..	12.0	6.2	17.4	5.5	10.5	–4.6
1971-1975	..	5.8	0.9	12.2	4.9	11.2	–5.7
Czechoslovakia			[a]				
1966-1970	..	7.9	1.9	7.6	5.9	5.6	0.3
1971-1975	6.7	8.2	1.6	9.8	6.5	8.1	–1.4
1976-1980	6.2-6.5	..	..	..	..	..	..
German Democratic Republic							
1966-1970	7.0	8.2	3.4	10.3	4.8	6.7	–1.9
1971-1975	5.0	5.1	0.7	7.1	4.1	6.4	–1.9
1976-1980	5.0	..	..	..	..	..	..
Hungary[b]			[c]				
1966-1970	..	10.7	8.4	11.7	2.1	3.0	–0.9
1971-1975	7.0-8.0	5.4	0.9	15.2	4.5	14.2	–8.5
1976-1980	5.5-6.0	..	..	..	..	..	..
Poland							
1966-1970	..	8.6	5.2	11.7	3.2	6.2	–2.8
1971-1975	..	13.9	6.2	16.9	7.3	10.1	–2.6
1976-1980	7.4-7.7	..	..	..	..	..	..
Romania							
1966-1970	..	11.5	5.8	11.7	5.3	5.5	–0.2
1971-1975	..	7.0	1.4	15.8	5.6	14.4	–7.6
Soviet Union							
1966-1970	6.9	7.4	4.5	11.8	2.8	7.0	–3.9
1971-1975	6.8	6.0	3.0	10.8	2.9	7.6	–4.7
1976-1980	7.2	..	..	..	..	..	..

Sources and notes: As for table 4.1.

[a] Only those employed on actual construction projects.

[b] Based on data in constant prices, for the whole economy.

[c] Building workers only.

Though flats remain the dominant form, detached or semi-detached family houses are acquiring greater importance. In Poland, no less than 450,000 dwellings—almost 30 per cent of the planned total for 1976-1980—will be of this type, and 30,000 were built in the German Democratic Republic in the period 1971-1975. Individual or co-operative house-building is also gaining in importance. In Poland housing co-operatives will build nearly 900,000 homes in the current five-year period, including 50,000 family houses. In the German Democratic Republic all 30,000 family houses built in 1971-1975 were financed by individuals or on the basis of state credits to individuals. In Hungary 289,000 of the dwellings built in 1971-1975—almost two-thirds of the total—were in the family-owned category, and the public borrowed almost 47 billion forints in connexion with the purchase of these. About half the dwellings to be constructed in Hungary in the current five-year period will be in the family-owned category. To the extent that home ownership develops further in the region as a whole it can be expected to be a factor affecting trends in levels of savings deposits.

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In *Albania* the 1976-1980 plan foresees that total investments will grow at an annual rate of 6.2 to 6.7 per cent, slightly more slowly than national income, for which the corresponding figure is 6.7 to 7.0 per cent. State investments will, however, grow at a rate of 7.4 per cent, and this reflects primarily a high planned rate of investment in state industry (8.6 per cent), though state investments in the non-material sphere will grow even more rapidly—by 12.3 per cent per annum. The planned rate of growth of state investments is somewhat lower than the actual rate for 1971-1975 of 8.9 per cent, though that figure itself represents an under-fulfilment of the plan. It is also lower than the planned rates of increase of construction output in the state sector (8.2 per cent) and of output of the building materials industry (9.6 per cent). This would appear to indicate a concern to consolidate the achievements of the last five-year period, and to strengthen the material base of investment. A modest annual rate of increase of productivity in construction of 2.3 to 2.5 per cent is planned (corresponding figures for industry 2.8 to 3.2 per cent).

(iv) International co-operation in the investment field

The scope for increasing investment efficiency is not limited by frontiers, especially within the CMEA area, and the intensifying development of various forms of co-operation has been a feature of the period since 1966, and will be even more so in the current plan period. Instances of co-operation fall into three main groups — those involving multilateral intra-CMEA co-operation, those involving bilateral intra-CMEA arrangements, and those involving co-operation with western countries and developing countries. The main instances of the first category are among the great raw material and fuel projects already mentioned. Examples of bilateral co-operation are numerous. Perhaps the most striking examples are those involving the Soviet Union and Bulgaria. In the period 1976-1980 the number of joint Soviet-Bulgarian industrial enterprises will double, and the Soviet Union will deliver to Bulgaria 120 complete investment projects. Hungary has signed a number of agreements with the Soviet Union on co-operation in the fields of coal mining, electricity, oil and engineering, and 1979 will see the first ore train to be able to cross the Soviet-Polish border without having to unload, after the completion, in 1978, of a bridge across the Bug. Nearly 40 per cent of total investment in engineering in Poland in the period 1971-1975 went to enterprises involved in CMEA joint ventures. Specialization in engineering is planned to deepen considerably in 1976-1980, with mutual deliveries of equipment and instruments due to double in volume for the CMEA as a whole. The CMEA International Investment Bank continues to foster the extension of these multilateral and bilateral links. Work on intra-CMEA standardization and unification continues, though a good deal remains to be done.

Links with western countries take the form of both direct co-operation, and the purchase of licences. Transactions such as these sometimes place considerable strain on balance-of-payments situations and hard currency reserves, and the question has sometimes arisen as to whether domestic technology and industry might not be able to develop quite adequately themselves the products for which licences are bought. The very clear answer recently given by the Polish Minister for Engineering is that even in situations where domestic development is possible the purchase of licences saves time, saves expenditure on tooling up for research, and permits domestic technology to start developing from a higher point.[19] Co-operation with developing countries is being increasingly extended into the sphere of joint investment projects, and details of some of these are given in section 6.

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[19] *Życie Gospodarcze*, 26 September 1976, p. 2.

5. INCOMES AND CONSUMPTION

In the five-year plans for 1976-1980 great emphasis has been placed on a continuous and steady increase in the material and cultural well-being of the population. The prominence of this objective is underlined by the fact that in all the plans very detailed sections are devoted to broad social programmes. These sections include sets of measures embracing many aspects of the standard of living. In this connexion the aim of bringing closer together the levels of cultural, working and living conditions of the urban and rural populations has been particularly emphasized. In addition, the main macro-economic proportions embodied in the plans call for closer integration of economic and social programmes.

As will be shown below in quantitative terms, these objectives are related to further increases in real incomes and in financial outlays for social purposes, to a shortening of the working week, to a further increase in consumption, to a faster growth of turnover of services than in the case of retail trade, and to an improvement in housing conditions, etc.

(i) Incomes and income policies

A rise in *real income per head of population* is envisaged in all of the plans. Planned annual rates of growth aim largely to continue the trends of the previous five-year period (around 4 per cent). In cases where a slowdown is indicated, this can be partly related to the planned level of over-all performance of the national economy. Since increases in real income during the previous five-year period considerably exceeded the planned targets in many countries, lower planned rates for 1976-1980 might indicate a move towards restoring structural relations between increases in incomes and those in output. In Poland, the country with the highest rate of income growth in the period 1971-1975, the planned rate of growth of wages for 1976-1980 has been set at about half this rate. This will bring Polish trends closer to the general trend of the region (table 5.1).

The planned abolition of wage and salary taxes in Poland, the further reduction of their incidence in Bulgaria and the Soviet Union, the abolition of taxation of pensions in Czechoslovakia, and the scheduled continuation of redemption of state internal loans in the Soviet Union will also increase take-home pay and purchasing power.

As mentioned in the *Economic Survey of Europe in 1975*, the expansion of real income during the 1971-1975 period was more closely correlated than previously with rises in real wages, and with above-average increases in income from social funds (table 5.2), this reflecting increasing strains on supplies of additional labour. (Exceptions were Romania and, to a lesser extent, Poland.) These tendencies should continue in the current medium-term plan period.

Total family incomes will increase more rapidly than wages, owing to a higher rate of increase in incomes from social funds, in some cases in collective farmers' incomes, and also to an increase in the percentage of active members in families. Wages per wage- or salary-earner are planned to increase more slowly than real per capita income, with, the two rates of increase continuing to converge.

Owing to the scarcity of labour, planners in most countries expect a deceleration in the rate of expansion of global employment (an almost constant level of employment in the material sphere, and virtually all increases in employment to go to the non-material sphere in the 1976-1980 period).[1] As a result, the share of the increment in income per head of population due to increased employment will further decline. This seems also to be one of the reasons why per capita income targets for 1976-1980 are slightly lower than those achieved in the previous five years.

It was reported at the end of the previous five-year period that differences between the incomes of workers and those of co-operative peasants had been virtually eliminated in Bulgaria, Czechoslovakia and Hungary. This *equalization of incomes* has been accompanied by an improvement in working conditions, particularly through the increasing use of machinery and mechanization. The long-term objective of bringing the incomes of co-operative farmers close to those of workers has, then, been reached in these countries, and both types of incomes are to grow proportionately during the 1976-1980 period. It has been recently reported that increases in rural incomes similar to those in real wages are expected in Poland.

For 1976-1980 incomes of the peasantry are expected to rise faster than real wages in Romania. Receipts from work on collective farms and on individual plots are to rise by 3.8-5.3 per cent annually, while the planned rate of increase of real remuneration of wage- and salary-earners is set at between 3.4 and 4.1 per cent. The gap between the two planned indicators is less pronounced than it was in the preceding five-year period.[2]

The Soviet five-year plan for 1976-1980 envisages the steady overcoming of the economic, social and cultural differences between town and countryside. Collective farmers' pay from work on collective farms will, accordingly, grow more rapidly than the average wages of wage- and salary-earners (by 26 per cent compared with 17 per cent). Levels of pay on collective farms and state agricultural enterprises will also come closer to each

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[1] Data concerning employment increases are scarce, but may be derived indirectly from labour productivity objectives, or estimated by extrapolation of past trends.

[2] During the period 1971-1975 the real earnings of peasants increased on a five-year average by 10.8 per cent, while real wages went up by 3.8 per cent.

TABLE 5.1

Real income and real wages

(Average annual percentage change)

Period	Real income per head of population	Real wages per wage- and salary-earner	Real income per head of population	Real wages per wage- and salary-earner
	Bulgaria		*Romania*	
1966-1970	6.0	5.2	4.3	3.8
Plan 1971-1975	4.6-5.4	. .	7.0-8.0	3.8
1971-1975	5.8	2.8	8.0	3.8
Plan 1976-1980	3.7	3.1[a]	6.2-7.0	3.4-4.1
	Czechoslovakia		*Soviet Union*	
1966-1970	6.1	3.6	5.9	4.9
Plan 1971-1975	4.1*	2.5-3.0[a]	5.4	3.7-4.1[a]
1971-1975	4.5	3.4	4.4	3.7
Plan 1976-1980	. .	2.5-2.8[a]	3.9	3.2[a]
	German Democratic Republic		*Byelorussian SSR*	
				a
1966-1970	4.2	4.2	7.1	5.7
Plan 1971-1975	4.1	. .	5.4	4.4
1971-1975	5.5	3.7	4.6	3.4
Plan 1976-1980	3.9-4.2	. .	4.0	4.1
	Hungary		*Ukrainian SSR*	
				a
1966-1970	6.2	3.5	5.9	4.2
Plan 1971-1975	4.6-4.9	3.0-3.4	. .	. .
1971-1975	4.6	3.4	3.7	3.0
Plan 1976-1980	3.4-3.7	2.7-3.0	3.5	2.8
	Poland			
	b			
1966-1970	4.3	2.1		
Plan 1971-1975	. .	3.2-3.4		
1971-1975	9.6	7.2		
Plan 1976-1980	. .	3.0-3.4		

Sources: National statistics; CMEA Statistical Yearbooks; plans and plan-fulfilment reports.

[a] Average nominal wages.

[b] Money income in real terms.

other as productivity and working conditions are equalized.

In the second part of the 1960s increased attention was devoted in the Soviet Union and the east European countries to redressing the relationship between *wages* and growth in *productivity*, with a view to eliminating cases where wage increases have outpaced rises in output. This policy is to be continued in the 1976-1980 period. Emphasis has also been placed on intensifying the incentive role of wages, salaries and collective farmers' pay, in order to make them more dependent on the end results of production. At the same time, an increase in minimum monthly wages and a more marked increase in remuneration for lower and middle echelons is also planned. This should lead to a further narrowing of occupational wage differentials.

In the *Soviet Union* the average wage per wage- and salary-earner is planned to increase by 17 per cent during the five-year period, and should reach at least 170 roubles per month in 1980. The increase in the incentive role of wages and salaries, particularly with regard to the acquisition of higher levels of skill, will be supported by projected improvements in the wage-rate system.[3] To support these aims, wider application of progressive forms of material incentives for increasing output is planned through the brigade system in industry and other branches, and through piece-rate pay, especially in construction and agriculture. The system of bonuses is also being modified in the direction of a closer relation-

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[3] Before 1966 approximately 5 per cent of the wage fund in industry was being used for material incentives, but that figure had almost doubled by 1975. The average size of the material incentive fund in industry is 9-10 per cent of the wage fund. The use of material incentive funds has led to an increase in the size of the bonus element in average earnings, by 1973 to 16.3 per cent for industrial and production personnel, 15.2 per cent for workers, and 22.1 per cent for engineering and technical personnel (Y. Artemov, "The economic limits of material incentive funds", in *Voprosy Ekonomiki*, No. 8, 1975.)

TABLE 5.2

Money income

(Average annual percentage change)

Country and period	*Total money income*	*Wages and wage-like income*	*Income from agriculture*	*Pensions and social benefits*	
				Total	*Pensions*
Bulgaria					
1966-1970	7.5	8.6	4.8	14.1	13.6
1971-1975	6.9	6.0	8.1	9.0	7.7
Czechoslovakia					
1966-1970	8.2	7.5	7.1	10.7	10.2
1971-1975	5.2	4.7	3.1	5.2	4.9
German Democratic Republic					
1966-1970	4.0	3.6	..	6.1	5.7
Plan 1971-1975	4.0	..	..	..	..
1971-1975	4.8	3.5	..	7.8	6.9
Plan 1976-1980	4.0	..	..	..	..
Hungary					
1966-1970	8.6	..	..	..	11.0
1971-1975	8.7	7.7	9.5	15.2	15.8
Poland					
1966-1970	6.6	7.4	0.5	9.7	14.1
Plan 1971-1975	7.7	..	..	..	..
1971-1975	13.3	13.6	12.8	14.2	13.2
Plan 1976-1980	7.6	..	..	..	..
Romania			[a]		
1966-1970	..	..	1.3	..	..
1971-1975	..	..	10.8	..	..
Plan 1976-1980	..	..	3.8-5.3	..	3.0-3.5
Soviet Union					
1966-1970	8.1	8.2	5.5	9.5	8.9
1971-1975	6.2	6.3	3.3	7.7	8.0
Byelorussian SSR					
1966-1970	10.6	10.7	9.5	11.1	10.4
1971-1975	6.4	6.6	3.1	8.7	9.0
Ukrainian SSR					
1966-1970	7.2	8.2	3.6	9.5	10.7
1971-1975	5.6	5.5	3.5	7.6	7.8

Sources: As for table 5.1.

NOTE. Figures are for gross income, except for the German Democratic Republic, Hungary and Poland, for which they are for net income.

[a] Income per active person from the collective and private agricultural sectors.

ship to high work performance, and to the fulfilment and over-fulfilment of scientifically substantiated output norms. The extension of special pay differentials for personnel working in areas with difficult natural climatic conditions, and on jobs with arduous and unpleasant conditions, will continue. In a number of branches of industry the premium on pay for night work is to be increased. Length-of-service pay increments for wage- and salary-earners will be introduced in the Far East. (This had been established in the previous quinquennium for the areas of northern Europe.) The extension of regional pay differentials for workers and office employees in the Urals and certain areas of Kazakhstan will continue.[4] The process of raising the minimum wage and increasing basic wage and salary rates for personnel in the middle pay categories employed in branches of the non-material sphere will be completed during the current five-year period. This will mean an increase in the earnings of 31 million persons in education, health, culture, trade, consumer and communal services, etc. (The programme for increasing wages and salaries below a level of 90 roubles a month, combined with tax remissions and reductions, was carried out for material branches during the period 1971-1975.) A new stage will now also begin in the process of raising the minimum wage and basic wage and salary rates.

In *Bulgaria*, wages and salaries based on quantity and quality of work are to be the basic source of the increment in employees' incomes. It is envisaged that in 1980 average monthly wages will reach 170 leva, with a minimum wage level of 90 leva. To intensify the stimulating character of wages, a reform of the remuneration system will be implemented in the first two years of the five-year period.

In *Czechoslovakia* the continuation of the wage policy based on the strengthening of the interdependence between work done and earnings is emphasized. The average monthly wage is planned to rise by 13-15 per cent, from 2,375 crowns in 1975 to 2,700 crowns by 1980. Developments in earnings of co-operative farmers should be similar to those in other branches of the national economy.

To increase the share of wages in total earnings in the *German Democratic Republic* the introduction of new basic wage rates is planned for 1.5 million wage-earners during the five-year period. This will be implemented step by step in the period 1976-1977, starting in the most important industrial branches such as fuel and energy, potash and ore, metallurgy and chemicals. Efficiency-orientated wage and salary increases are also planned for foremen and university graduates. The minimum wage is due to be raised, and wages and salaries in the middle pay categories increased as from 1976.

Hungary plans to increase wages by about 3 per cent annually in real terms. The wage differential system will be improved through centrally directed wage increases. In several branches supplements paid to wage-earners working in continuous and three-shift systems will be increased. Special attention is to be paid to the wages of manual workers employed in large-scale enterprises. To avoid side-effects which had developed in the system whereby wage increases were closely related to enterprise performance, wages and salaries are now to be permitted, as from 1976, to rise to a certain level (1.5-2 per cent yearly) without regard to enterprise performance. In addition, central wage regulations will be applied on a wider scale with the aim of assuring commensurate wages in those sectors where wages cannot be linked to performance criterion, or where output can be expected to increase only at a slow rate. To prevent the development of unwarranted wage and salary differentials between the material and non-material spheres, it is planned that employees of enterprises and those of state-financed organizations should receive identical increases. The introduction of new wage tariffs is also expected in connexion with work done under difficult conditions or involving a high degree of skill. In harmony with the long-term objectives of policy on the standard of living—i.e. that relative differences between earnings should be moderated while differences in absolute terms should be increased—the higher basic wage rates will be increased more moderately than the lower.[5]

In *Romania* an 18 to 22 per cent rise in real wages is envisaged for the 1976-1980 five-year period. By 1980 average nominal pay will amount to about 2,400 lei (in December 1975 it was 1,975 lei). According to the directives for 1976-1980, special attention will be paid, as in the past, to raising low levels of remuneration and ensuring an equitable and at the same time stimulating ratio between lower and higher levels of remuneration. This is in accord with the new law on remuneration, which entered into force on 1 January 1975. The spread between the highest and the lowest wage bracket, which was 12:1 in 1965, is to fall to 6:1 under the new law, through a faster rise of wage rates in the lower bracket.

During the 1971-1975 period 64 per cent of distributed net material product went to consumption in *Albania*. In the same period real income per head grew by 14.5 per cent (a yearly average of 2.8 per cent), mainly as a result of increased employment. In connexion with measures adopted for further narrowing the gap between rural and urban incomes, real income per head in the towns increased by 8.7 per cent, while that in the countryside increased by 20.5 per cent. The spread between the highest and the lowest wage bracket further narrowed. Thus the ratio of the average wage of a worker to that of an enterprise director was reduced to 1:1.7, and that of the lowest to the highest wage brackets among workers to about 1:1.5. The directives for the 1976-1980 five-year period underline the need to consolidate the standard of living and to improve it in accordance with what is possible. The consumption fund will account for 65 per

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[4] In recent years a number of decisions have been adopted involving special regional wage regulations: regional wage coefficients have been established for the Far East, Siberia, and the European North; benefits have been extended for personnel in the Far North and similar areas. (G. Milner and E. Gilinskaya, "Inter-regional regulation of the living standard of the population", in *Planovoe Khozyaistvo*, No. 1, 1975.)

[5] The planned wage increases (in nominal terms) are as shown below:

Structure of wage and salary increases during the period 1976-1980 by wage policy element

Component of wage policy	*Annual percentage rate*
Centrally decided wage increases	1.8
Wage increases related to enterprise performance	3.0
Guaranteed wage increases independent of enterprise performance	1.5
Wage adjustments to compensate for centrally decided price increases	0.7
Total	7.0

Source: Gazdaság, March 1976.

cent of distributed net material product, with priority going to the social consumption fund. On this basis, real per capita income of the population in 1980 will be 11 to 14 per cent higher than it was in 1975 (this will mean a 2.1 to 2.7 per cent annual average increase). Further measures will be taken to narrow differences between town and country, and between the incomes (wages and salaries) of various categories of employee. In connexion with this latter aim, a decision has been made to reduce the wages of better paid categories and to improve the balance of the remuneration system.

Increasing attention is being paid throughout the region to the *social consumption fund* as a tool of re-distribution and equalization of incomes. (As in the past, taxation of the population will play only a marginal role in income re-distribution, and measures will be designed to abolish and reduce the tax burden.)

The information in the text table below indicates that social funds will play an increasing role in the implementation of the policy of narrowing the income gap between families with different numbers of dependants.[6]

Social consumption funds

(*Average annual percentage change*)

	1966-1970	*1971-1975*	*Plan 1976-1980*
Bulgaria	9.0	7.4	6.2
German Democratic Republic	6.1	7.9	5.2-5.5
Romania	10.0	9.0 [a]	8.5
Soviet Union	8.8	7.1	5.4

Sources: National statistics; plans and plan-fulfilment reports.

Note: Basic figures are at current prices, and include all transfer payments and payments in kind from the state budget.

[a] Annual percentage change of five-year average over the previous five-year average.

In 1975 social consumption funds accounted for about one-third of total income in Czechoslovakia and in the Soviet Union, and for more than one-quarter in Hungary. Their share in relation to produced national income was about one-quarter in the German Democratic Republic. During the period 1976-1980 budgetary expenditures on social consumption in Czechoslovakia will increase by more than 29 per cent. Over the five-year period the average amount of social consumption per person will increase by about 1,600 crowns to 8,000 crowns. A total amount of 207 to 210 billion marks is earmarked for spending on social funds in the German Democratic Republic during the period 1976-1980, which will mean an increase of 46 to 49 billion marks (29 to 31 per cent) over the previous five-year period. For a family of four, this will mean annual receipts of 8,160 marks by 1980 (corresponding figure for 1975 6,480 marks) in terms of transfer payments and services and benefits such as education and medical care, etc. In Romania annual social fund expenditures per family are due to rise by 50 per cent, from 7,400 lei to 10,900 lei by 1980. In the Soviet Union payments and benefits to the population from social consumption funds will increase by 27 billion roubles (30 per cent) during the period 1976-1980, and will reach 117 billion roubles by 1980.

Family allowances will continue to grow as a proportion of total expenditures from social consumption funds in the period 1976-1980, which should improve the income position of families with large numbers of dependents. These measures are also designed to support population policy objectives. The institution of a *child care allowance* has already been introduced in Czechoslovakia and Hungary.[7] Similar allowances are to be established in the German Democratic Republic, the Soviet Union, and, in a special form, in Poland. In Czechoslovakia allowances to families with children are expected to grow by 14.5 per cent during the five-year period, most of the increase to be accounted for by higher family allowances, which will total 11.5 billion crowns in 1980. Social security payments are planned to go up faster than earned incomes in Hungary. The level of child care allowance will go in step with increases in average wages (which means that they will remain roughly equal to one-third of the average wage).

In most countries improvements in *pension schemes* have been announced. In Czechoslovakia and the German Democratic Republic measures due to go into force in 1976 will raise almost all pensions.[8] The safeguarding of the real value of pensions (especially in the case of those in lower brackets) is among social policy objectives in Hungary (pensions automatically increase by an annual 2 per cent). With a view to the gradual equalization of the pension rights of co-operative farmers and wage- and salary-earners, the retirement age of the former will be reduced by one year every year from 1976 until 1980 (from 1980 a uniform retirement age of 60 for men and 55 for women will be established throughout Hungary). One basic aim of the long-term programme of social benefit payments in Poland—started in 1974 and to proceed by stages up to 1980—is to reduce the gap between the living standards of employed and retired people. To reach this target, retirement benefits and pensions are to be increased by more than 40 per cent in the period 1976-1980. Romania plans to increase the level of pensions by 15 to 16 per cent in real terms during the period 1976-1980. Within the framework of the development of the social security system, the minimum old-age pension will again be increased in the Soviet Union. The process of bringing social security arrangements for the collective farm peasantry closer to those for workers and office employees will continue.

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[6] In Hungary differentials in incomes of wage-earner families are due only to the extent of one-third to differences in wages. Two-thirds originate from differences in numbers of dependants (*Figyelő*, 2 June 1976).

[7] This is paid to mothers who stop work in order to care for their children at home (up to two years of age in Czechoslovakia and three years in Hungary).

[8] In the German Democratic Republic a comprehensive programme of measures relating to social welfare and remuneration has been adopted for the period 1976-1980, including provisions for raising the level of pensions. (*Neues Deutschland*, 29-30 May 1976.)

One of the consequences of the implementation of the above-mentioned social policy measures will be a further narrowing of *family income differentials*. Concrete information on expected changes in income distribution has been given only in the cases of Czechoslovakia and the Soviet Union. By 1980 over 60 per cent of households are to have a level of average annual per capita income in excess of 15,600 crowns in Czechoslovakia. The number of households with annual per capita incomes of less than 12,000 crowns will be reduced to less than 10 per cent of the total. In 1970, 41 per cent, and in 1975, 23 per cent of households had belonged to this group. Families with per capita income of less than 8,500 crowns which in 1970 represented 13 per cent of all households, will disappear. In the Soviet Union average monthly income will exceed 100 roubles for half the population by 1980 as compared with only 4 per cent in 1965.

In most of the countries of the region provisions for a further *shortening of the working week* have been announced, but only in the German Democratic Republic and Romania have details been published. In the German Democratic Republic a gradual transition to a 40-hour week has been decided upon, cutting daily worktime, while continuing to work five days a week. From January 1977 workers who do regular shift work will receive an additional three days' paid leave. The five-year plan also envisages the extension of leave for all workers by at least three days from 1979. In Romania measures concerning the shortening of the working week (to a 44-hour work-week) will be introduced gradually, to be finalized in the first part of the next five-year period (in 1982). As a result of these measures 55 per cent of the total number of wage- and salary-earners will work a shortened working week by the end of the 1976-1980 period.

(ii) Consumer price policy

No changes from previous years in price policies have been announced in the plan documents of the Soviet Union and the east European countries. The continuation of the policy of maintaining consumer price stability is stated as an aim in the plans of Bulgaria, Czechoslovakia, the German Democratic Republic and the Soviet Union, and this policy will be supported, as in the past, by budgetary subsidies.[9] According to the Soviet plan guidelines security of real incomes is to be guaranteed by the maintenance of stable state retail prices for basic foodstuffs and other consumer foods, and price reductions on certain types of goods, as the necessary conditions and commodity resources are created. Changes—mainly reductions—in retail prices for some products and charges for some services have been announced, to take effect from 1977.

Some degree of price flexibility, which has been a characteristic of policies followed in recent years by Poland and Romania, and since 1968 by Hungary, can be expected to continue to be a policy element for the period 1976-1980. In all three countries, however, consumer price levels will remain under general control, and the income effects of consumer price adjustments will be mitigated by compensatory increases in wages and salaries as well as by social transfer payments. (Past developments are given in table 5.3.)

In the *Hungarian* consumer price system, a number of disproportions have accumulated with time. Some of these were created a long time ago, while others are associated with changes in relative world market prices. A 10 to 15 year programme for the adjustment of consumer prices to cost relatives was announced in 1968. The 1971-1973 price measures were steps in this direction. Prices of foodstuffs and services are still, however, set at levels which do not cover full costs. As part of the long-term programme, the adjustment of consumer prices to production costs will continue in the period 1976-1980. The planners have made allowance for a cumulative 19 per cent increase in consumer prices over the whole quinquennium.[10] The practice of linking consumer price increases to rises in income supplements as compensation for centrally decided price adjustments will be maintained, thus ensuring the realization of the planned growth of real wages and real incomes. To keep consumer price changes within planned limits, strict price control and measures to prevent unjustified price increases have been decided on.

Under the price law of 1971, which among other things allows for external price trends to be reflected in internal prices, some further price adjustments can be expected in *Romania* during the period 1976-1980.[11] The directives emphasize the aim of keeping prices within plan provisions and, on this basis, of ensuring the steady growth of purchasing power. There is a 5 per cent gap between planned levels of increase in average nominal wages and real wages (according to the directives for the 1976-1980 plan), which probably means that an accumulated 5 per cent increase in retail prices has been assumed for the five-year period.

No final decision has been reached on price policy measures in *Poland*. The necessity for some price adjustments, especially in the field of food products, is well known and has been frequently emphasized recently. Food prices, which have been frozen since 1971, are disproportionately low, and do not cover costs. Subsidized consumer prices of food cost the State over 100 billion zlotys a year,[12] and deflect consumer demand towards these goods, in particular towards meat and meat products. The increasing gap between subsidized retail prices and purchase prices, which will further increase in 1976, indicates the need for change in the structure of prices.

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[9] In 1975 subsidies on consumer goods amounted to 10 per cent of national income in the German Democratic Republic and to 7 per cent in Poland. To keep milk and meat prices stable 19 billion roubles were spent on subsidies in the Soviet Union in 1975, amounting to 5 per cent of national income.

[10] *Gazdaság*, March 1976.

[11] The law defined such basic elements of price policy as the maintenance of a centrally determined and controlled price system, and the protection of consumer prices from the effects of foreign inflation. (Law on prices and tariffs; *Scînteia*, 2 December 1971.)

[12] *Trybuna Ludu*, 25 June 1976.

TABLE 5.3

Consumer price index

(For 1970, 1965 = 100; for 1975, 1970 = 100)

Country and period	*Total*	*Food*	*Non-food*	*Services*
Bulgaria[a]				
1970	103.4	107.4	100.3	..
1975	101.0	102.8	99.6	..
Czechoslovakia				
1970	108.7	103.7	113.4	118.2
1975	100.5	99.9	100.4	101.6
German Democratic Republic				
1970	99.8	101.0	98.2	100.1
1975	99.5	101.2	96.7	100.7
Hungary		[a]	[a]	
1970	104.0	105.4	102.4	111.3
1975	114.6	114.0	117.0	115.1
Poland		[b]		
1970	107.0	106.3	102.7	117.3
1975	113.3	110.5	113.1	111.4
Romania				[c]
1970	..	..	..	..
1975	102.6	105.5	..	108.3
Soviet Union[a]				
1970	99.7	100.3	99.4	..
1975	99.6	100.9	98.0	..
Ukrainian SSR[a]				
1970	100.0	101.3	99.2	..
1975	100.0	101.3	98.4	..

Sources: National statistics.

[a] Retail price index. Data refer to the state sector in Bulgaria, and to the state and co-operative sectors in the Soviet Union.

[b] Excluding alcoholic beverages.

[c] Rent only.

(iii) Consumption, retail trade and services

The rate of expansion of *consumption* set in the 1976-1980 plans is only marginally lower than that of expansion of net material product for the majority of countries, and higher in the Soviet Union and probably in Poland (table 5.4).

The faster rate of growth planned for consumption than for net material product in the Soviet Union represents a planned shift from accumulation to consumption.[13] A 5.3 per cent annual average increase in consumption over the five-year period is to be accompanied by a 3.6 per cent rate of growth in accumulation funds. The proportion of the consumption fund to distributed net material product is planned to increase from 73.5 per cent to 75.0 per cent during the five-year period. In absolute terms this will mean an increase of nearly 76 billion roubles, almost 12 billion roubles more than the increment during the previous quinquennium. No figures have been published relating to the development of consumption in Poland, but on the basis of data on supplies of goods to be available to retail trade and services, and given the planned reduction in the gross investment ratio, a slightly faster planned rate of increase in consumption than in national income can be supposed. The necessity of redressing the balance of external economic relations and of counter-balancing the effect of worsening terms of trade may be among the reasons for the slightly lower planned rates of growth for consumption in comparison with those for net material product in the German Democratic Republic and in Hungary (both countries are planning a 3.9 to 4.2 per

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[13] The extent to which such a shift can be implemented depends on a number of factors. (See *Economic Survey of Europe in 1971*, United Nations, New York 1972, part 2, chapter 3.)

TABLE 5.4

Total consumption; personal and social consumption

(Average annual percentage change)

Period	Consumption			Consumption		
	Total	*Personal*	*Social*	*Total*	*Personal*	*Social*
		Bulgaria			*Romania*	
1966-1970	7.1	7.0	10.6	5.3	..	..
Plan 1971-1975	..	..	..	..	..	..
1971-1975	7.1	7.1	15.0	7.5	..	..
Plan 1976-1980	..	..	..	8.0	..	..
		Czechoslovakia			*Soviet Union*	
1966-1970	5.5	5.4	5.7	7.3	5.9	9.8
Plan 1971-1975	..	5.1	..	7.0	4.7*	8.4*
1971-1975	5.3	4.8	6.8	6.2	5.0	7.8
Plan 1976-1980	..	..	..	5.3	4.4*	6.4*
		German Democratic Republic			*Byelorussian SSR*	
1966-1970	4.7	4.4	7.4	..	..	..
Plan 1971-1975	3.9-4.2	4.1	..	..	..	..
1971-1975	5.4	5.1	7.9	10.1	9.7	10.7
Plan 1976-1980	3.9-4.2	..	..	8.8	6.5*	12.5
		Hungary[a]			*Ukrainian SSR*	
1966-1970	6.2	6.0	8.3	6.8	..	..
Plan 1971-1975	5.6*	..	..	6.3	..	..
1971-1975	5.1	5.1	5.6	4.0	..	..
Plan 1976-1980	3.9-4.2	..	..	5.8	5.5*	6.9*
		Poland				
1966-1970	5.5	5.0	8.5			
Plan 1971-1975	..	..	..			
1971-1975	8.7	8.5	9.8			

Sources: As for table 5.1.

[a] Data for personal consumption refer to consumption of the population. Data for social consumption refer only to the consumption of material goods by institutions meeting the collective needs of the community as a whole.

cent annual increase in consumption and a 5.0 and 5.4 to 5.7 per cent annual increase in net material product). The less rapid planned rate of expansion of consumption than of net material product in Romania is related to the fact that an increased investment ratio is planned. However, there will be an acceleration in the rate of growth of consumption, from over 7.5 to 8 per cent.

In line with rising consumption levels, the *structure* of aggregate *consumption* will undergo some changes. Consumption of food, while rising in absolute terms, will continue to decline as a proportion of total consumption. Within food consumption the relative shift from starches to protein, to vegetables and fruit, will continue. Especially ambitious targets have been set in Bulgaria, where per capita consumption of meat is to increase by 24 per cent, of milk by 26 per cent, of eggs by 37 per cent and of fruit by 60 per cent. A considerable increase is also envisaged in per capita consumption of vegetables and fruit in Hungary and the Soviet Union. In other respects the figures indicate a continuation of past trends (table 5.5).

In all countries which give a breakdown of *retail sales* into food and non-food products, non-food sales are to expand faster than those of food. The degree of the shift varies, however, between countries. In the German Democratic Republic the growth of purchases of industrial goods is to be almost twice as fast as that of food purchases. This represents a continuation of the trend which began in the second half of the 1960s, and became more pronounced in the last five-year period (table 5.6).

In Albania the volume of retail trade increased by 35 per cent during the 1971-1975 period, while retail prices remained stable. The volume of retail trade is expected to be 22-25 per cent higher by 1980 than it was in 1975.

The volume of *consumer durables* available to households had already reached a high level (except for motor cars) by the end of the last five-year period. According

TABLE 5.5

Per capita consumption of selected foods

(In kilogrammes, except for eggs, in units)

	1965	1970	1975	Plan 1980	1965	1970	1975	1965	1970	1975
	Bulgaria				*Czechoslovakia*			*German Democratic Republic*		
Meat and meat products	39.6	41.4	56.5	70	61.7	71.9	82	58.7	66.1	77.8
Fish and fish products	3.4	5.5	6.2	8	4.9	5.2	5.6[a]	9.1	7.9	8.5
Milk and milk products	107[b]	120[b]	146[b]	220[c]	180.2	196.2	211	94.1[c]	98.5[c]	102.1[c]
of which: Butter	..	..	..	.	6.8	7.4	7.4[a]	12.5	14.6	14.5
Cereal products	193	174	157	150	167.4	150.2	141.6[a]	100.2	97.3	94.2
Potatoes	28.9	25.9	23.1	..	93.2	103.4	98	156.5	153.5	142.3
Vegetables	113	118	127	150	76.7	76.3	75	63.8	84.8	96.6
Fruit	..	..	118	190	34.2	49.1	50.2[a]	46.5	55.5	66.4
Sugar and sugar products	22.3	32.9	34.0	..	42.4	43.8	44.8[a]	30.1	34.4	38.3
Animal fats	15.3	16.2	18.0	..	8.1	6.1	6.0[a]	6.6	5.8	5.1
Vegetable fats and oils					7.8	9.3	9.3[a]	2.7	2.2	2.2
Eggs	100	122	146	200	228	277	295	211	239	268
	Hungary				*Poland*					
Meat and meat products	51.6	57.6	70.5	76-78	49.2	53.0	70.3			
Fish and fish products	1.6	2.3	2.8	..	5.0	6.3	7.2			
Milk and milk products	97.1	109.6	125.0	..	240[b]	270[b]	272[b]			
of which: Butter	1.6	2.1	1.8	..	5.0	6.0	7.4			
Cereal products	139.2	128.2	122.0	..	143	133	122			
Potatoes	84.3	75.1	65.0	..	215	190	173			
Vegetables	76.7	83.2	86.5	98-100	..	98.0[d]	94.0[d]			
Fruit	52.8	72.5	73.8	93-95	..	22.9[d]	21.4[d]			
Sugar and sugar products	30.1	33.5	39.5	..	32.6	39.2	43.0			
Animal fats	19.5	22.8	22.1	..	6.8	8.2	8.1			
Vegetable fats and oils	2.0	2.8	4.6	..	5.7	6.6	7.5			
Eggs	188	247	270	..	162	186	209			
	Soviet Union				*Byelorussian SSR*			*Ukrainian SSR*		
Meat and meat products	41[e]	48[e]	57[e]	64[e]	45[e]	49[e]	62[e]	41[e]	49[e]	60[e]
Fish and fish products	12.6	15.4	16.8	20.8	..	..	..	12.7	15.9	15.9
Milk and milk products	251	307	315	..	299	371	385	245	311	335
of which: Butter	..	..	..	..	..	..	..	..	..	..
Cereal products	156	149	141	..	156	144	141	158	155	151
Potatoes	142	130	120	..	299	245	218	161	156	143
Vegetables	72	82	87	110.5	68	70	74	102	103	118
Fruit	28	35	37	50.0	..	..	..	..	..	..
Sugar and sugar products	34.2	38.8	40.8	..	26.1	35.1	40.5	36.2	41.4	45.4
Animal fats	..	..	..	..	..	..	..	..	..	..
Vegetable fats and oils	7.1	6.8	7.9	..	4.2	4.6	5.8	7.8	7.4	8.5
Eggs	124	159	215	..	119	170	262	124	156	210

Sources: As for table 5.1. [a] Data are for 1974. [b] Excluding milk used for butter production. [c] Milk only, in litres. [d] Fresh only. [e] Including fat.

TABLE 5.6

Turnover of retail trade and services

(Average annual percentage change)

Country and period	Retail trade			Services
	Total	Food	Non-food	
Bulgaria				
1966-1970	8.6	6.3	10.4	..
1971-1975	7.8	6.6	8.6	..
Plan 1976-1980	7.0	..	..	10.6[a]
Czechoslovakia[b]				
1966-1970	7.9	5.3	10.9	9.2
Plan 1971-1975	5.0	..	..	5.0
1971-1975	5.4	4.2	6.6	6.2
Plan 1976-1980	4.2-4.6	..	..	3.7-4.1[c]
German Democratic Republic				
1966-1970	4.6	4.4	5.0	..
Plan 1971-1975	4.0-4.2[d]	..	..	..
1971-1975	5.0	3.5	6.9	..
Plan 1976-1980	3.7-4.1	2.5-3.0[d]	4.5-5.0[d]	..
Hungary				e
1966-1970	8.9	7.4	10.4	4*
Plan 1971-1975	6.0-6.3	..	..	..
1971-1975	6.2	5.7	6.6	5.4
Plan 1976-1980	4.8	3.9	5.5*	..
Poland				
1966-1970	6.2	5.8	6.6	..
Plan 1971-1975	7.4[d]	7.0[d]	8.9[d]	..
1971-1975	10.3	9.4	10.7	..
Plan 1976-1980	10.0[d]	..	..	11.2
Romania		f	f	
1966-1970	8.0	7.7	7.2	..
Plan 1971-1975	7.0-8.0	..	..	9.2-10.0
1971-1975	8.2	7.5	8.4	11.1
Plan 1976-1980	7.8-8.2	..	..	10.1-11.1
Soviet Union				
1966-1970	8.2	7.3	9.6	16.3
Plan 1971-1975	7.2	..	..	14.9
1971-1975	6.3	5.2	7.6	10.2
Plan 1976-1980	5.2	..	..	8.3
Byelorussian SSR				
1966-1970	11.1	10.8	11.2	19.4
Plan 1971-1975	8.2	..	..	16.5
1971-1975	6.0	5.9	6.2	12.9
Plan 1976-1980	5.1	..	..	8.3
Ukrainian SSR				
1966-1970	8.2	7.6	8.9	18.8
Plan 1971-1975	7.4	..	..	15.1
1971-1975	6.0	5.0	7.1	11.4
Plan 1976-1980	4.9	..	..	8.1

Sources: As for table 5.1.

Note: Unless otherwise indicated, figures for turnover of retail trade are at constant prices; data for services are at current prices.

[a] Industrial services only.

[b] At current prices.

[c] Communal and co-operative sectors only.

[d] Supplies to retail trade.

[e] Total services in volume terms.

[f] State and co-operative trade, at current prices.

to the plans for 1976-1980 this number will further increase (table 5.7). In 1980 refrigerators will be available to every household in the German Democratic Republic, and to nine out of ten households in Bulgaria, Hungary and the Soviet Union. Motor cars will be owned by roughly every second family in the German Democratic Republic and Czechoslovakia, and by one out of four in Bulgaria and Hungary. During the five-year period 800 thousand cars and 1.6 to 1.8 million television sets will be put on the market in Czechoslovakia.

In the majority of plan documents emphasis has been placed on decisive improvement in the *supply of consumer goods*, with special regard to choice and quality.[14] In general, industrial output in branches that produce consumer goods will increase more rapidly than will retail trade turnover. With a high level of growth performance in industrial output and stability in the proportion of consumer goods, encouraging conditions for improvement in sales standards would be created. The necessity of further progress in improving the quality of commodities is particularly emphasized in plan documents. Industry must produce not just more goods, but higher-quality goods.

To avoid difficulties which may arise because of a lack of co-ordination between production and trade organizations, enterprises and production associations that produce consumer goods in the *Soviet Union* will now be able to open outlet stores for the study of consumer needs. The output of mass-consumption goods industries is to increase by 70 per cent during the present five-year period.

A growing contribution to the improved supply of consumer goods is envisaged from the side of imports, particularly of imports from other CMEA countries. In *Bulgaria*, the extension of the range of supplies will be supported by increased imports, by 1980 to the extent of about 20 per cent of the total domestic turnover. These will come mostly from CMEA partners. In addition, the next two or three years will see the elimination of shortages of some consumer goods even if this means the reduction or cessation of exports of the goods in question.

The basic aim in *Poland* in the present five-year period, and in particular for 1976 and 1977 will be the stabilization of the market. This task is linked largely with the development of the food complex.[15] The steep increase in the production and consumption of meat which occurred during the last five-year period (per capita consumption level increased from 53 to 70 kilogrammes) was based (to a great extent) on growing imports of cereals and fodder. Taking into account the difficulty of further increasing such imports, the aim is now to increase supplies from internal sources. The solution of this problem will require, above all, the reconstruction and development of animal breeding, and increased consumption of protein foods such as milk and dairy products, and of fruit and vegetables. But changes in the structure of household expenditures will also be marked by an increase in expenditures on industrial goods (furniture, electrical and chemical products, etc.), and on flat and car ownership. Plans for industrial production have been adjusted with a view to increasing the supply of goods. In the period 1976-1980 supplies of goods will grow by about 60 per cent and supplies of services by about 70 per cent, compared with a planned increase in money incomes of the population of about 44 per cent. The amount spent on the expansion of consumer-goods production capacities should reach 400 billion zlotys in 1976-1980 (in 1971-1975, 280 billion zlotys were spent on this).

Improvements in the level of service in retail trade are envisaged through the development of the material base of, and in some cases through organizational change in, the internal trade sector. Measures will be taken to ensure a reduction in the time customers spend in shopping.

According to the five-year plans, increasing attention will be devoted to improving the *supply of services*. In countries for which such data are available higher rates of increase are planned for turnover of services than for that of retail trade, particularly in the Soviet Union (table 5.6). An above-average increase in supplies of services to the population in rural localities is envisaged in many cases, as well as an increase in the volume and range of services connected with the growth in the numbers of privately-owned cars. To create conditions for reducing time spent on housework, the development of household services and public catering and an increase in production and sales of semi-processed items are also planned.

The average annual rate of increase of *personal savings* slowed down in most countries of the region in the period 1971-1975. Only in Poland, where the rate of economic development and of personal income growth was particularly high, was the rate of growth of savings deposits in 1971-1975 significantly higher than it had been in 1966-1970 (see text table below). As far as the present five-year period is concerned, although no figures have been published, the rates of growth of savings deposits can on the whole be expected to continue the trend of the previous five-year period. (Poland, with a planned rate of growth of wages fixed at about half the 1971-1975 rate, will probably come closer to the general trend.)

Savings deposits

	Average annual percentage change		*Ratio of stock of savings deposits to retail trade turnover*
	1966-1970	*1971-1975*	*1975*
Bulgaria	17.3	14.3	0.72
Czechoslovakia	12.4	12.8	0.55
German Democratic Rep.	10.8	7.6	0.92
Hungary	15.6	14.1	0.37
Poland	17.5	21.4	0.37
Soviet Union	19.9	14.3	0.47

Sources: National statistics, *CMEA Yearbook 1976*.

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[14] Comprehensive programmes have been adopted on production and sales of consumer goods in Romania (*Agerpres*, No. 22, July 1976) and on production and quality of mass consumption goods during the period 1976-1980 in the Soviet Union (*Pravda*, 6 January 1977).

[15] See section on agriculture.

TABLE 5.7

Stocks of consumer durables per 100 households

(*Physical units*)

	1965	1970	1975	Plan 1980	1965	1970	1975	Plan 1980
	Bulgaria				*Poland*			
						[b]		
Radio sets	59[a]	62[a]	50[a]	130	..	91	124	..
Television sets	8	42	58	80	..	77	93	..
Refrigerators	5	29	61	90	..	47	73	..
Washing machines	23	50	50	65	..	81	92	..
Motor cars	2	6	16	26	..	..	9	..
	Czechoslovakia				*Soviet Union*			
Radio sets	112	140	171	..	59	72	79	83
Television sets	51	74	93	..	24	51	74	84
Refrigerators	30	56	79	..	11	32	61	85
Washing machines	67	86	110	..	21	52	65	..
Motor cars	10	18	30	..	..	..	..	..
	German Democratic Republic				*Byelorussian SSR*			
Radio sets	87	92	96	..	34	51	65	..
Television sets	49	69	82	97	14	40	62	..
Refrigerators	26	56	85	100	6	25	56	..
Washing machines	28	54	73	80	14	36	49	..
Motor cars	8	16	26	..	..	..	..	..
	Hungary							
Radio sets	75	120	165	..				
Television sets	27	56	71	80				
Refrigerators	8	32	64	90				
Washing machines	37	55	67	75				
Motor cars	3	7	16	25				

Sources: As for table 5.1.

[a] Excluding portable radio sets.

[b] Data are for 1971.

All the current five-year plans treat the improvement of *housing* conditions as one of the main tasks relating to the well-being of the population. In some cases housing has been declared a priority target. Common features in systems of distribution of new flats include stress on quick availability of apartments for large families, special forms of aid to young married couples, and provisions to meet the demand for housing on the part of workers' families. According to the plans, particular attention should be devoted to housing in capital cities and industrial centres. As a continuation of the efforts of recent years, the quality of housing construction is to rise, and homes are to be made more comfortable. In Bulgaria the average living area per dwelling is planned to reach about 74 square metres during the period 1976-1980. The average size of new dwellings in the German Democratic Republic is to increase from 56 square metres in the period 1971-1975 to 58 square metres in 1980. By the end of the five-year period 60 per cent of state and co-operative investment in housing in the Soviet Union will be on the basis of new improved standard designs. In Romania 40 per cent of state-built dwellings will have three, four or five rooms.

In Albania also efforts were made during the period 1971-1975 to improve housing conditions. The system of drinking water supply to town and country was extended as were electricity, telephone and road networks, particularly to rural areas. About 62,000 flats and houses are to be built during the period 1976-1980 in Albania, of which 39,000 will be in the countryside.

The tendencies which have appeared in recent years with respect to *housing finance* will continue.[16] As hitherto, the vast bulk of housing will be built at the expense of the state in the German Democratic Republic and in the Soviet Union (where state and co-operative housing construction accounts for about 90 per cent of the total). But the development of co-operative housing construction is being particularly encouraged, and in small cities and rural localities individual housing construction will also be encouraged in both these countries. According to the directives for the five-year plan of the German Democratic Republic, about 45 per cent of newly-built dwellings are to be erected by housing construction co-operatives, and about 10 per cent as owner-occupied houses. In countries like Bulgaria, Hungary and Romania, where the share of individual funds (supported by state credit) in housing finance during the period 1971-1975 was more than 60 per cent, the aim is to stabilize the existing proportions or to make a slight shift in the direction of state-owned flats. In Hungary the share financed by state funds is to be increased from 34 per cent in the period 1971-1975 to 35 to 36 per cent in the period 1976-1980. In Poland, the need to support single family house construction, and also to encourage the purchase of apartments, is seen as being closely related to the tendency for the income level of the population to increase.[17]

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[16] In some countries, notably Czechoslovakia and Poland, during the second half of the 1950s and in the course of the 1960s, the basis of financing housing was broadened by the inclusion of the resources of the population, in particular by the development of co-operative housing supported by state credits and contributions of co-operative members themselves. At the beginning of the 1970s co-operative building accounts for nearly half total housebuilding in Poland, and more than half the volume of housebuilding in Czechoslovakia. A similar policy has been pursued by slightly different methods in Hungary and Romania. (See *Human settlements in Europe: Post-war trends and policies*, United Nations, New York 1976.)

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[17] Further rapid growth in the role of building co-operatives is envisaged. At present any 10 citizens with ready cash can form the nucleus of a co-operative and apply for bank credits and building permits.

6. TRADE AND CO-OPERATION

(i) General trends in trade

The volume of trade of the east European countries and the Soviet Union is planned to increase by 45 per cent or almost 8 per cent per year in the period 1976-1980 by comparison with that of 1971-1975 (table 6.1). This implies a growth of 60 per cent (10 per cent per year) between 1975 and 1980, which is similar to the increase recorded between 1970 and 1975. At the same time, the growth of GMP (gross material product) in CMEA countries is planned to slow down. The fastest rates of expansion of trade are stipulated for Bulgaria and Romania—10 and 14 per cent per year respectively. In contrast, the slowest rate of increase—6 to 7 per cent—is planned for the Soviet Union and for Czechoslovakia and the German Democratic Republic, the two most developed countries of the region. This picture is similar to that which has prevailed in the past. The growth of trade between 1975 and 1980 is planned to decelerate in the Soviet Union and Poland but speed up in Czechoslovakia, Hungary and Romania.

In contrast to the preceding quinquennium, deliveries within the region are expected now to become the most dynamic flow in the trade of the CMEA countries. It is planned that they should increase by 50 per cent (8.4 per cent per year) in the 1976-1980 period by comparison with that of 1971-1975 (table 6.2). This implies a growth of 70 per cent (11 per cent per year) from 1975 to 1980, which is faster than the growth achieved during the preceding five years. The rate of expansion of trade with the rest of the world may slacken considerably, except in the cases of Hungary and Romania, where east-west trade is planned to grow at a faster rate. The general tendency for the region as a whole may be explained by a number of factors. The degree of integration between CMEA countries will increase considerably. At the same time further price adjustments affecting intra-CMEA trade will be made. On the one hand, these will raise the prices of energy and other industrial materials exported mostly by the Soviet Union, leading to an improvement in the Soviet terms of trade. On the other hand, the other CMEA countries will consequently have to raise the volume of corresponding deliveries of manufacured products. CMEA countries are also concerned to reduce their deficits in east-west trade and repay a part of their debts to western countries. In many cases, this necessitates putting the brake on the growth of imports.

Direct information on *the growth of exports and imports* is not available, but it seems that the volume of exports is planned to increase faster than that of imports. This conclusion is suggested by economic policies which have been devised with the aim of reducing the trade deficit Almost all countries intend to restrain the growth of domestic consumption relative to the growth of GMP, while the intended reduction in the growth rate of industrial output will save on imports without much affecting exports. This should raise their exportable surpluses and reduce relatively their needs for imports of industrial inputs. Moreover, the growth of exporting industries will be especially stimulated. In Poland, for instance, the output of these industries is planned to increase by 82 per cent as compared with 50 per cent for total industry. In Hungary a special government credit scheme has been set up to encourage enterprises to invest in the manufacture of export goods. It is these industries that have benefited most from recent modernizations, and they will enjoy further priority in supplies of current inputs and finance. In addition, rates of growth of domestic output of industrial materials will be speeded up and enterprises stimulated to reduce consumption of inputs per unit of output. Finally, food supplies should be increasingly derived from domestic sources. The dependence on imports of machinery, which for technological reasons will remain at a high level, should only partly offset the above import-saving effects.

The possible range of growth rates of exports and imports discussed below is calculated on the basis of available quantitative and qualitative information. In *intra-CMEA trade*, export and import growth rates of all countries combined cannot differ from each other except through deficiencies in the recording of trade flows. The major problem is to estimate the growth of exports and imports within *east-west* trade. The starting point here is the deficit of CMEA countries in this trade, which cumulated to some $19 billion during the period 1971-1975 and exceeded $9 billion in 1975 (table 6.3). The total debts of CMEA countries to the west may have risen by the end of 1975 to some $24 to $27 billion (in private capital markets some $15 billion), which implies a considerable amount of debt servicing coming due during the 1976-1980 period. Almost all the CMEA countries intend to improve their balances in east-west trade and some of them in fact aim at evening out that balance.[1] This implies a more rapid growth of their exports than of their imports. With total east-west trade assumed to grow by some 47 per cent between 1975 and 1980, exports would have to increase by 58 and imports by 40 per cent if the deficit were to remain at the 1975 level. To cut the deficit by half, which would correspond more closely to the statement "improvement in the balance" inscribed in national plans, east-west exports and imports would have to increase by 70 and 31 per cent

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[1] The Polish Minister of Finance stated recently to the *Financial Times* (10 December 1976) that Poland hopes to halve its deficit with the west by the end of 1977 and to halve it again in 1978. At any rate the trade should be in balance by the end of the decade. It should be remembered that the Polish deficit in 1975 was the largest in eastern Europe.

TABLE 6.1

Growth of foreign trade

Country and period	Average annual rate of growth		Coefficient of trade elasticity	Trade as percentage of:		Trade in US dollars per head of population (end year data)[c]
	GMP	Trade turnover		GMP at domestic prices[a]	GDP at foreign prices[b]	
Bulgaria						
1966-1970	8.7	10.3	1.18	33	20	224
1971-1975[d]	..	17.0	..	..	30	591
1971-1975	7.8	12.0	1.54	40	25	..
1976-1980	8.4	9.9	1.18	42.5	27	922
Czechoslovakia						
1966-1970	6.9	6.9	1.00	27	15	257
1971-1975[d]	..	13.0	..	..	16	605
1971-1975	5.7	6.4	1.12	28	16	..
Plan 1976-1980	5.1	6.5	1.27	30	17	807
German Democratic Republic						
1966-1970	5.2	9.9	1.90	19	16	275
1971-1975[d]	..	13.3	..	..	17	618
1971-1975	5.4	9.1	1.69	23	19	..
1976-1980	5.2	7.3*	1.40	25	20	862
Hungary						
1966-1970	6.8	9.7	1.43	30	20	233
1971-1975[d]	..	14.9	..	..	26	638
1971-1975	6.3	8.3	1.32	34	23	..
1976-1980	5.6	8.1	1.45	38	26	925
Poland						
1966-1970	6.0	9.4	1.57	23	10	111
1971-1975[d]	..	21.8	..	..	13	336
1971-1975	9.8	13.0	1.33	27	12	..
1976-1980	7.2	8.5*	1.18	29	13	486
Romania						
1966-1970	7.7	11.8	1.53	..	11	94
1971-1975[d]	..	18.2	..	..	15	250
1971-1975	11.3	13.5	1.20	25*	13	..
1976-1980	10.5	14.3	1.36	28*	15	466
Soviet Union						
1966-1970	7.8	8.6	1.10	4.4	3.9	51
1971-1975[d]	..	18.1	..	..	5.5	131
1971-1975	5.7	9.8	1.72	5.3	4.7	..
1976-1980	4.7	6.0	1.28	5.7	5.0	168
Total CMEA area						
1966-1970	7.4	9.0	1.22	..	..	..
1971-1975[d]	..	17.1	..	..	..	..
1971-1975	6.2	9.9	1.60	9.2	..	..
1976-1980	5.3	7.7	1.45	10.2	..	..

TABLE 6.1 (*continued*)

Country and period	*Average annual rate of growth*		*Coefficient of trade elasticity*	*Trade as percentage of:*		*Trade in US dollars per head of population (end year data)* [c]
	GMP	*Trade turnover*		*GMP at domestic prices* [a]	*GDP at foreign prices* [b]	
East Europe only						
1971-1975	7.8	10.2	1.31	28.0	..	..
1976-1980	6.7	8.6	1.28	30.0	..	..

Sources: National statistics, plan documents, press reports and secretariat estimates.

Note: Unless otherwise stated all figures are based on volume data. The growth rate of trade turnover for 1976-1980 is based on the five-year annual average related to the 1971-1975 average. For other periods it is based on final year data from each period. All growth rates of GMP are based on final year data from each period.

[a] $\frac{TT}{2 \cdot GMP}$, where TT = trade turnover.

[b] $\frac{TT}{2 \cdot GDP}$.

[c] $\frac{TT}{2 \cdot P}$, where P = population.

[d] In value terms.

respectively (11 and 6 per cent per year). This, together with a certain increase that may take place in the surplus of trade of the CMEA countries with developing areas, would add up to figures of 52 per cent growth for total exports and 40 per cent for total imports (nearly 9 and 7 per cent per year). Any more substantial difference in growth rates in east-west trade would automatically mean a large difference in growth rates of total exports and imports.[2] It can be assumed that a similar pattern will be followed by most individual countries.

Information on *trade by major product groups* is also scarce. It seems that trade in machinery will remain the most dynamic item both in exports and imports and both in intra-CMEA and in east-west trade. Trade in machinery will benefit from the rapid expansion in co-operation expected, from further modernization of industry, and from a rising level of credits. Both exports and imports of fuels and other primary products may grow less fast than average. Domestic capacities will expand considerably, and substantial economies in the consumption of inputs per unit of output are planned.[3] The trade in food products will be affected by a planned rapid increase in domestic output. These shifts can be illustrated by the cases of Soviet and Czechoslovak intra-CMEA trade (table 6.4). For Bulgaria also it has been stated that the share of machinery in total exports will increase from 40 per cent in 1975 to 50 per cent in 1980. Hungary intends by 1980 to raise the share of total machinery exports sold for convertible currency to 30 per cent.

(ii) Trade specialization and trade dependence

Apart from the Soviet Union, the CMEA countries represent relatively small markets, where scale and cost economies are impossible without broad international specialization. All of them, including the Soviet Union, have, for some time past, taken account of the increasing role of foreign trade in their allocation policies. During the last 10 years, trade elasticities (defined as the ratio of volume growth rates of foreign trade turnover to those of net material product) in the region as a whole have been greater than unity in virtually all cases, and to an ever-increasing degree. (In Czechoslovakia they have been only slightly more than unity.) In the German Democratic Republic, Hungary, Poland and Romania trade elasticities declined somewhat in 1971-1975, but in the Soviet Union they rose steeply. In general, these elasticities indicate that the degree of specialization of the east European economies had increased over time.

A further increase in the role of foreign trade is stipulated in the 1976-1980 plans. Table 6.1 indicates a trade elasticity for the region as a whole of 1.45. This ratio is, however, calculated on the basis of $\frac{1976\text{-}1980}{1971\text{-}1975}$ trade and $\frac{1980}{1975}$ output. Measured on the basis of $\frac{1980}{1975}$ trade, the elasticity comes to nearly 1.70, which is more than it was during the period 1971-1975.[4] Trade elasticities above unity are planned in all countries, though they may decline in countries where they are already relatively large.

The *degree of specialization* (measured by the ratio of foreign trade to GMP or GDP) of individual east European economies has remained rather varied. Measured in current world market prices and against GDP, it varied in 1975 from as little as 6 per cent for the Soviet Union to 13 to 17 per cent for Poland and Romania, Czechoslovakia and the German Democratic Republic and to as much as 26 to 30 per cent for Hungary and Bulgaria. Over the current quinquennium, the degree of specialization is expected to increase everywhere but most rapidly in the smaller countries. An attempt has been made to throw a different light on this question by using input-output tables to express both foreign trade and GMP in domestic prices. The results are shown in table 6.1. The picture of specialization expressed in this way is,

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[2] A Polish projection, based on very optimistic assumptions, estimated figures of 11.5 and 7.1 per cent respectively for the growth of total east-west exports and imports of the CMEA area as a whole. The corresponding estimates for total CMEA trade were 9.6 and 6.4 per cent respectively. (*Polish Foreign Trade*, 10 October 1976, p. 5.)

[3] See the section on industry for detailed information.

[4] Figures for $\frac{1976\text{-}1980}{1971\text{-}1975}$ trade are taken from plan documents. Figures for $\frac{1980}{1975}$ trade are taken from other publications.

TABLE 6.2

Growth of intra-CMEA trade and of trade with the rest of the world

(Based on volume data)

A = Average annual percentage change in trade turnover.
B = Coefficient of trade elasticity (ratio of trade to GMP growth rates).
C = Ratio of trade to GMP at domestic prices; data are for final years of given periods.
D = Percentage share of given trade in total trade.

	Intra-CMEA trade		*Trade with western countries*	
	1971-1975	*1976-1980* [a]	*1971-1975*	*1976-1980* [a]
Bulgaria				
A	9.8	11.2	17.4	6.3
B	1.24	1.33	2.20	0.75
C	28	32	12	11
D	70	75	30	25
Czechoslovakia				
A	8.5	8.1	3.3	3.0
B	1.49	1.59	0.58	0.59
C	17.9	21	10.1	9.9
D	64	69	36	31
German Democratic Republic				
A	8.3	8.5	9.8	4.8
B	1.54	1.63	1.81	0.92
C	15	17	8	8.8
D	65	68	35	32
Hungary				
A	10.0	6.9	4.7	8.5
B	1.61	1.23	0.76	1.52
C	22	23	12	15
D	65	63	35	37
Poland				
A	10.1	8.5	15.8	8.5
B	1.04	1.18	1.63	1.18
C	14	15	13	14
D	50	50	50	50
Romania				
A	7.7	12.0	16.4	15.4
B	0.69	1.14	1.46	1.47
C	10	10	15	18
D	39	35	61	65
Soviet Union				
A	8.3	7.1	13.3	5.0
B	1.46	1.51	2.33	1.06
C	2.4	2.7	2.9	3.0
D	46	48	54	52

TABLE 6.2 (*continued*)

	Intra-CMEA trade		*Trade with western countries*	
	1971-1975	*1976-1980* [a]	*1971-1975*	*1976-1980* [a]
Total CMEA area				
A	8.9	8.4[b]	12.7	7.0
B	1.33	1.53	1.90	1.27
C	4.8	5.5	4.4	4.7
D	52	54	48	46
Eastern Europe only				
C	15	18	13	15

Sources and notes: As for table 6.1.

[a] Estimates of minimum rates by the secretariat.

[b] 11 per cent with 1975 as base year.

however, blurred by the pricing system, which overvalues products entering foreign trade.

We can, nevertheless, attempt to show the degree of specialization of the east European economies within a broader international context. Differences by countries in the proportion of GDP traded internationally depend on a great many factors, but only two are easily quantifiable: the level of economic development, and the size of countries in terms of population. Of two given countries at similar levels of economic development, the smaller country tends to have a higher trade dependence than the bigger country. This is because the smaller country cannot realize scale economies without a larger degree of specialization. Conversely, of two given countries of similar size but at a different level of economic development, the more developed tends to have a higher degree of trade dependence than the less developed. This is because the growth of output tends to be concentrated in manufacturing, where economies of scale and opportunities for foreign trade are greater than in other sectors. In addition, higher incomes create proportionately higher demand for imports of manufactured goods.

A logarithmic multiple regression analysis was run for 24 European countries, and also for these countries plus the United States, Canada and Japan (table 6.5). This relates *trade dependence* (the percentage share of imports and exports in total GDP) to two independent variables—size (measured by population) and level of development (measured by per capita GDP in US dollars). The omission of other variables undoubtedly affects the final results. This is true especially with respect to natural resource endowment. No account, moreover, was taken of tariff barriers, but they can be assumed to be the function of size and level of economic development. Geographic factors are also left out, but for Europe alone these should not be of great importance.

The conclusions that follow are based on equation (1); equation (2) is given as a point of reference. Concerning export dependence, the fit in equation (1) is good: signs are correct, regression coefficients are significant at the 5 per cent level, and the coefficient of determination is quite high. On the other hand, the Durbin-Watson statistics indicate a degree of autocorrelation. The same can be said of imports, except that the GDP regression coefficient is not quite significant at the 5 per cent level. This may be explicable by the tendency for developing countries in southern Europe to run persistent deficits. There does, then, appear to be some basis for proceeding cautiously with an analysis based on the concept of export dependence. That of import dependence can be used to provide only the most general indications.

Table 6.6 provides information on actual and fitted export and import dependence functions. Taking export dependence, Bulgaria and Hungary appear to be highly over-specialized, Romania is on the level of the international average, while all other countries are under-specialized, especially Czechoslovakia. In the Bulgarian case production is highly specialized in a number of sectors which are linked closely to the Soviet market. To a certain extent this is true also of Hungary. The position of Czechoslovakia reflects the wide range of manufactured products produced inside the country. The differences for the Soviet Union between actual and fitted dependence are smaller when the United States is taken into account. As far as import dependence is concerned, all countries but Bulgaria appear under-specialized, Hungary being just on the margin. Czechoslovakia appears again as the most under-specialized.

(iii) Economic co-operation between the CMEA countries

The importance of intra-regional integration can be shown on the basis of shares of domestic output subject to mutual trade. In 1975, for the CMEA countries other than the Soviet Union, this proportion was 15 per

TABLE 6.3

Exports and imports of east European countries and the Soviet Union by regions and trade balances

	Average annual growth rates, 1970-1975				*Millions of US dollars*	
	Exports		*Imports*		*Cumulative balance 1971-1975*	*Balance 1975*
	Value	*Volume*	*Value*	*Volume*		
Bulgaria						
Total	14.2	10.1	19.1	13.6	−1 091	−739
CMEA area	14.1	10.0	18.1	9.6	−184	−248
Developed countries	7.1	10.2	19.5	22.4	−1 438	−747
Developing countries	28.3		17.1		469	252
Czechoslovakia						
Total	12.6	6.3	13.8	6.5	−491	−369
CMEA area	13.2	9.4	14.4	7.6	−83	−355
Developed countries	10.8	2.0	13.9	4.5	−1 218	−350
Developing countries	10.3		11.6		749	346
German Democratic Republic						
Total	12.8	9.1	14.0	7.2	−2 059	−1 202
CMEA area[a]	13.1	8.3	..	..	..	..
Developed countries[a]	14.9	9.8	..	..	..	..
Developing countries[a]	15.0		..	..	..	..
Hungary						
Total	13.9	9.4	15.9	7.3	−1 383	−1 101
CMEA area	15.7	11.7	15.9	8.5	195	−397
Developed countries	18.5	3.8	15.4	5.0	−1 714	−726
Developing countries	15.9		16.1		−19	−2
Poland						
Total	19.2	10.7	24.6	15.0	−6 503	−2 256
CMEA area	17.7	12.6	13.9	7.4	−208	364
Developed countries	21.6	7.6	20.6	21.0	−6 958	−2 875
Developing countries	21.5		20.0		605	233
Romania						
Total	19.1	14.7	17.6	12.0	−49	−1
CMEA area	12.9	9.2	11.6	6.2	585	77
Developed countries	21.1	18.0	19.5	15.0	−1 281	−36
Developing countries	30.6		30.8		579	265
Soviet Union						
Total	15.5	7.1	20.4	11.7	42	−3 501
CMEA area	14.3	7.4	13.6	9.3	−1 259	736
Developed countries	22.4	9.2	30.0	16.5	−6 658	−4 815
Developing countries	13.6		22.5		5 658	99
Total CMEA area[b]						
Total	15.7	8.6	19.6	11.4	−9 475	−7 967
CMEA area	14.8	9.4	14.4	8.5	−952[c]	177[c]
Developed countries	20.1	7.4	24.3	14.5	−19 267	−9 940
Developing countries	16.9		21.7		8 041	1 193

Source: National statistics.

[a] Trade turnover.

[b] The trade of the German Democratic Republic excluded. With the trade of the German Democratic Republic included, balances amounted in 1975 to a total o —9,169 million dollars.

[c] The recording error.

TABLE 6.4

The commodity composition of the trade of the Soviet Union and Czechoslovakia with CMEA countries

	Exports			*Imports*		
	In billions of US dollars	*Percentage share of total*		*In billions of US dollars*	*Percentage share of total*	
Soviet Union	*1975*	*1975*	*1980*	*1975*	*1975*	*1980*
Machinery	3.5	22.5	27.5	6.8	45.4	47.9
Consumer goods	0.4	2.8	3.3	2.9	19.1	17.1
Fuels and other primary products	9.7	61.6	59.4	2.2	14.7	13.7
Other (mainly foodstuffs)	2.1	13.1	9.8	3.1	20.8	21.3
Total	15.7	100.0	100.0	15.0	100.0	100.0
Czechoslovakia[a]	*1975*	*1971-1975*	*1976-1980*	*1975*	*1971-1975*	*1976-1980*
Machinery	3.5	64.6	65.3	2.5	42.0	50.3
Consumer goods	0.8	14.3	15.9	0.4	6.6	7.1
Fuels and other primary products	1.1	20.1	17.4	2.4	41.3	37.3
Other (mainly foodstuffs)	0.1	1.0	1.4	0.6	10.1	5.3
Total	5.5	100.0	100.0	5.9	100.0	100.0

Sources: For the Soviet Union press reports; for Czechoslovakia *Zahraniční Obchod*, No. 6, 1976.

[a] Based on the trade agreements for the respective periods.

cent of GMP calculated in domestic prices, 2 percentage points more than in 1970 (table 6.2). Variations by individual countries are large: the most highly specialized in these terms are Bulgaria and Hungary, followed by Czechoslovakia and the German Democratic Republic. The least specialized is Romania. In the Soviet Union the proportion of domestic output traded with other CMEA countries is small. Measured in world market prices and against GDP, these ratios are generally at a lower absolute level—for the east European countries alone perhaps 6 and 9 per cent in 1970 and 1975 respectively. During the period 1976-1980 they are expected to increase further for these countries to some 18 per cent of GMP in domestic prices and to 12 per cent of GDP

TABLE 6.5

Regression equations of export and import dependence

(1971/72 average)

1. *Europe (including the Soviet Union)*

(*a*) $$LX = 2.22236 + \underset{(2.64)}{0.41330\,Lx_1} - \underset{(-3.661)}{0.55957\,Lx_2}$$

$$R^2 = 0.54 \qquad DW = 1.23 \qquad N = 24$$

(*b*) $$LY = 4.73608 + \underset{(1.55)}{0.19616\,Lx_1} - \underset{(-5.70)}{0.70422\,Lx_2}$$

$$R^2 = 0.65 \qquad DW = 0.64 \qquad N = 24$$

2. *Europe (including the Soviet Union); United States, Canada and Japan*

(*a*) $$LX = 3.38737 + \underset{(2.36)}{0.33627\,Lx_1} - \underset{(-5.31)}{0.67874\,Lx_2}$$

$$R^2 = 0.58 \qquad DW = 1.15 \qquad N = 27$$

(*b*) $$LY = 5.58038 + \underset{(1.27)}{0.14837\,Lx_1} - \underset{(5.42)}{0.79701\,Lx_2}$$

$$R^2 = 0.73 \qquad DW = 0.63 \qquad N = 27$$

Sources: The International Bank Atlas and United Nations statistics.

Symbols:
X = exports/GDP
Y = imports/GDP
x_1 = GDP/population
x_2 = population
L = log
DW = Durbin-Watson statistics

t-tests are shown in brackets.

TABLE 6.6

Actual and fitted ratios of exports and imports to GDP of east European countries and the Soviet Union

(1971/72 average)

	Export dependence			*Import dependence*		
	Actual	*Fitted*	*Residual*	*Actual*	*Fitted*	*Residual*
Bulgaria	22.65	15.12	+7.53	22.29	19.75	+2.54
Czechoslovakia	13.60	16.73	−3.13	13.41	18.49	−5.08
German Democratic Republic	13.99	16.26	−2.27	14.04	17.60	−3.56
Hungary	21.07	15.23	+5.84	17.86	19.01	−1.15
Poland	8.61	11.54	−2.93	10.01	12.92	−2.91
Romania	11.02	11.35	−0.33	10.64	14.21	−3.57
Soviet Union	3.81	6.58	−2.72	3.84	6.34	−2.50

Sources: Tables 6.1, 6.2 and 6.5.
Note: Based on table 6.5, equations 1(*a*) and 1(*b*).

in world market prices (based on growth rates 1980/1975). Some growth is expected also for the Soviet Union.

Integration within the region has, then, deepened, and as a result mutual trade has expanded rapidly. This has been a rather complex process. Individual countries have developed all major branches of industry and their global output structures have converged. But within these branches they have specialized in the output of narrower product groups. Their trade agreements, which bear an obligatory character, have taken account of these changes, and this trade pattern enables each country to participate in the output and trade of dynamic product lines. The same trends in output and trade are expected to continue in the years to come. Czechoslovakia and Bulgaria may be quoted as examples. Czechoslovakia is a highly industrialized country, yet its imports of machinery from other CMEA partners reached 42 per cent of total imports from CMEA countries in the 1971-1975 period, and this figure is planned to rise to 50 per cent during the 1976-1980 period. Bulgaria is one of the less industrialized countries of the region, yet its exports of machinery to CMEA countries rose from nothing at all to almost 40 per cent of total exports to CMEA countries in 1975, and the figure may go up to more than 50 per cent by 1980.

In the Soviet Union specialization has maintained certain traditional patterns. A substantial part of Soviet exports consists of fuels and raw materials, while imports have been dominated by manufactured products. Table 6.4 indicates that the position will be similar in the future. This reflects the special position of the Soviet Union, which accounts for more than 90 per cent of the known deposits of fuels and raw materials in the region.

The process of intra-regional specialization has in fact gone further than indicated above. Ordinary *trade agreements*, however elaborate, could not have ensured sufficient economies of scale nor prevented the multiplication of idle capacities in a number of highly complex manufacturing sectors. Moreover, they have become less and less adequate in ensuring sufficient supplies of energy and other industrial materials from within the region. To meet this challenge, schemes of economic co-operation of an ever-increasing complexity have been elaborated in the region, and special bilateral and multilateral agreements extending up to 1980 have been entered into to implement them.

The trade based on these *co-operation agreements* has been the most dynamic trade flow within the region: its value rose from $2.6 billion in 1973 to some $5 billion in 1975. Although it still represents a modest share of total intra-CMEA turnover (some 6 per cent in 1975), it was nevertheless very important for a number of branches (especially engineering), and for the east European countries more than for the Soviet Union, accounting in 1975 for as much as 30 per cent of Bulgarian exports to the Soviet Union. Trade through co-operative agreements is expected to increase very fast during the period 1976-1980, when intra-regional specialization and co-operation will be given a further impetus. Its share in Polish, Romanian and Czechoslovak trade with CMEA countries is planned to increase to 30, 25 and 15 per cent respectively of the total (17 and 11 per cent respectively for Poland and Czechoslovakia in 1975), in Bulgarian and Hungarian exports to CMEA countries to 30 and 22 per cent respectively, and in the bilateral flows between the German Democratic Republic and Hungary, between the German Democratic Republic and Poland and between Bulgaria and Poland to 30 per cent in each case (in the latter two cases the corresponding figure for 1975 is 11 per cent).

Originally (in the early 1960s) co-operation between the CMEA countries was concentrated on the automobile industry, shipbuilding, machine tools, construction, textiles, farm machinery and metallurgy. In the early 1970s it was extended to the production of computers, petrochemicals, automatic equipment, measuring instruments and nuclear-generating equipment. At the present time, while still continuing with the deepening of specialization in the above sectors, the emphasis is on joint projects to increase mutual supplies of energy and industrial materials, of research-intensive technology and electronically controlled equipment, as well as on providing the necessary infrastructure (especially pipelines, power lines and transport links).

Joint projects in the energy and raw materials fields take up the bulk of the resources involved, reflecting the fact that production in these sectors is becoming ever more capital-intensive. For a single country, be it the Soviet Union, this represents a heavy burden.

At the first stage, joint projects involve the pooling of capital, construction equipment and qualified manpower. The value of projects scheduled for implementation on this basis during the period 1976-1980 is estimated at 9 billion transferable roubles (almost 12 billion 1976 dollars). Some 8 billion roubles ($10.6 billion) will be invested on Soviet territory (in 8 major projects) and half of it will be contributed by that country. The other 4 billion will be contributed by partner countries in terms of machinery, equipment, services and consumer goods. Imports required from the west in this context can be financed by the CMEA Investment Bank, which has borrowed for this purpose some $1.2 billion in western capital markets. At the second stage, joint projects involve the sharing of future output according to individual contributions of capital and services. Deliveries are fixed for the 12 years that follow the completion of the projects, with the partner countries having right of first refusal to continue with purchases beyond that time. Some 40 to 50 per cent of the supplies to be delivered during the period 1979-1990 will represent compensation for capital and services contributed by individual countries as well as payment of interest.

Energy accounts for the major part of the resources earmarked for joint projects. All these projects are located in the Soviet Union. They include prospecting for oil and the extension of oil extraction (a network of oil pipelines of 105 million tons annual capacity already exists), the construction of a network of gas pipelines and the extension of capacities for gas extraction, and the construction of a 750 kV power line between Vinnitsa in the Soviet Union and Albertirsa in Hungary. Better utilization of Danubian water resources is also envisaged. All these projects are likely to be completed by 1978-1979. In the 12 years to follow, the Soviet Union should deliver to the partner countries on average per year: 10.5 million tons of oil, 15.5 billion cu.m. of gas and 9 billion kWh of electricity. The importance of these deliveries can be judged by comparison with total Soviet supplies to CMEA countries, which are fixed on average per year during the 1976-1980 period at 73 million tons for oil, 18 billion cu.m. for gas and 14 billion kWh for electricity. This will raise the ratio of Soviet supplies to total consumption of energy for the other CMEA countries from 19.5 per cent in 1975 (113 million tons expressed in conventional units) to 20.5 per cent in 1980 (160 million tons). Thus total Soviet deliveries of energy materials will increase by 42 per cent (7.2 per cent per year), which is higher than the planned rate of growth of industrial output for the region.

Other joint projects involve the production of *basic inputs*—cellulose (500 thousand tons annual capacity), asbestos (500 thousand tons annual capacity), iron ore, iron pellets, cast iron, rolled steel and potassium salt—and, again, most of them are located in the Soviet Union. All of these will be completed between 1978 and 1980. Annual Soviet counterpart deliveries fixed for the 1979-1990 period are: 205 thousand tons of cellulose, 180 thousand tons of asbestos, 5.3 million tons of iron-bearing materials (expressed in pure iron) and 200 thousand tons of cast iron. Soviet exports to CMEA countries in this categories amounted in 1975 to 426 thousand tons of cellulose, 260 thousand tons of asbestos and some 300 thousand tons of cast iron. There is a nickel joint project in Cuba (130 thousand tons capacity) and a copper-molybdenum project in Mongolia; both will start production in 1978. Negotiations are now going on for future joint projects involving iron and steel complexes, atomic power plants and isoprene rubber.

Also of importance is intra-regional *co-operation in manufacturing*. The bulk of this is in *engineering*: cars, heavy trucks, looms, lathes, machine tools, forges, presses, power equipment (in particular nuclear power equipment), agricultural and construction machinery, containers, locomotives, equipment for shipbuilding, chemicals and food processing, atomic power stations, electronic calculating machines and others. The trade arising from these agreements amounted to 24 per cent of total intra-CMEA trade in machinery in 1975: 19 and 26 per cent respectively ($1.2 and $2.7 billion, 4.5 and 6 times more than in 1970) of Soviet exports and imports of machinery came under co-operative agreements in that year. Further deepening of intra-CMEA specialization in machinery is expected in the years to come. Twenty-one multilateral specialization agreements involving 4,470 items were signed during the period 1971-1974, but 33 with 2,150 items in 1975 alone, while 54 are being presently negotiated. This will raise the shares of specialized products in the trade in machinery during 1976-1980 as follows: in the total machinery turnover of Czechoslovakia to more than 33 per cent, in that of Poland to 30 per cent (10 per cent in 1975), in that of Bulgaria to 65 per cent, in the Soviet Union-German Democratic Republic trade in machinery to 37 per cent (27 per cent in 1975), in Hungarian exports and imports of machinery to and from the Soviet Union to 64 and 46 per cent respectively, and in Hungarian exports and imports of machinery to and from other CMEA countries to 41 and 36 per cent respectively. The Soviet Union will remain the largest market for machinery produced in other CMEA countries.[5]

Co-operation in *other sectors of manufacturing* is weaker, but expansion is planned. In chemicals, growth points will include dyes, plastics, resins and artificial fibres. New efforts are being made in the field of herbicides, where by 1980 regional output should meet 96 per cent of regional demand. In food processing joint projects have been negotiated for citric acid (20 thousand tons) and for aromatizers, both to be located in the Soviet Union. CMEA specialists have drawn up a long-term programme for co-operation in the food industry extending over 10 to 15 years, though it has not yet been officially accepted. The programme envisages an increase in mutual supplies, improvements in the technology of food processing, storage and transportation and in that of construction and reconstruction of enterprises.

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[5] Soviet purchases of certain types of machinery in CMEA countries are expected to increase during the period 1976-1980 at very rapid rates: that of metal-cutting lathes by 80 per cent, of forging and pressing equipment by 98 per cent, of electro-technical equipment by 168 per cent, of rolling equipment by 66 per cent, of equipment for food processing by 98 per cent, of equipment for the chemicals industry by 170 per cent, of communications equipment by 100 per cent, of ships and marine equipment by 71 per cent, and of loading equipment by 76 per cent.

Co-operation in *scientific research* is already highly developed. At present, some 1,600 research and design organizations in CMEA countries are involved in the elaboration of mutual projects. There are, moreover, 47 centres for the co-ordination of research work in the region. Their aim is to concentrate intellectual resources, and to economize some 9 to 11 billion roubles in the period up to 1980.

A long-term projection has been worked out for the expansion of intra-regional freight and passenger transportation for the period up to 1990. Within this programme, joint projects for the modernization of railway tracks and stations, and for the development of sea and river transport have been negotiated. Increasing attention is being paid to the development of a unified container transportation system. The common pool has, at present, 272 thousand freight wagons.

Co-operation in *finance* is promoted through the CMEA Investment Bank which has so far extended $4 billion of credits in the financing of the construction, expansion and reconstruction of 41 enterprises involving all the member countries.

(iv) Co-operation with industrial market economies

Expressed in domestic prices, and in terms of GMP, about 10 per cent of the output of the east European countries depended in 1975 on trade with the industrial market economies (table 6.2). This was 3 to 3.5 percentage points more than in 1970. Expressed in world market prices and in terms of GDP this ratio would in 1975 have been slightly higher than 6 per cent (4 per cent in 1970). Above-average figures were reported for Romania, and below-average for the Soviet Union. The dependence of east European economies on east-west trade is expected to increase further during the period 1976-1980, to some 12 per cent of GMP in domestic prices, and 7 per cent of GDP in world market prices. All this implies a rather rapid growth in east-west trade in the years to come.

A threat is, however, posed to the future prospects of east-west trade by the problem of balance. Over the 1965-1975 period the volume of eastern imports from and exports to the western countries increased by 12 and 6 per cent respectively. An important problem of structure is involved here. The complementarity between the two regions is in terms of exchange of basic materials for manufactured goods. Eastern exports of fuels, other industrial materials and agricultural products, have, however, expanded more slowly than their imports of manufactured products. This is partly because eastern imports were stimulated by the modernization of domestic industries that has been on since 1970, which has raised the demand for western machinery, in the face of bottlenecks in domestic industry. Another factor is the recession in western countries which hampered eastern exports during 1974 and 1975. As a result, and despite certain improvements that took place in the terms of trade of the eastern region, the eastern deficit has grown rapidly, and exceeded $9 billion in 1975.

It is realized in both eastern and western countries that this lack of balance may be an impediment to future growth in east-west trade. Considerable efforts are being made now on both sides to remove this obstacle. It can be expected that the short-term factors which have recently aggravated the eastern deficit may soon disappear. The modernization of industry and improvement in industrial structure now being stressed in eastern Europe and the Soviet Union should, together with better marketing and finance, eventually stimulate exports and diminish dependence on imports of certain basic inputs. In addition, both eastern and western countries are active in the promotion of inter-country and inter-firm industrial co-operation, which should help to accelerate the growth of eastern exports.

The rapid expansion of interregional specialization and trade described above was induced primarily by market forces. Market forces were assisted by a gradual reduction of quantitative restrictions in western countries and by economic policies in the eastern region which speeded up the growth of east-west trade. However, the incidence of so-called *inter-firm industrial co-operation agreements* has been low. True, the number of these agreements has increased rapidly over time—to over 1000 by 1975—but their contribution to trade has remained minor—barely 3 per cent of total east-west trade in 1975.[6] The highest ratios were 4 per cent in the case of Hungary (7 per cent of Hungarian exports to the Federal Republic of Germany) and 9 per cent of total east-west trade in machinery.

In the years to come the role of inter-country and inter-firm industrial co-operation agreements will increase. This is because these agreements represent ways of bringing together the advantages of specialization by different countries in a more organized and more firmly established way than is possible through conventional trade. They guarantee a longer business time horizon. They are well suited to countries with different economic systems, and fit well into the planning systems of the CMEA countries. Moreover, the rising technical complexity of output calls for a more complex interregional organization of production, with the linking together of specialized producers involved in different stages of particular products.

The conditions for this type of co-operation are improving fast. Western countries rely increasingly on imports for their supplies of raw materials and labour-intensive manufactured products, which opens up broad possibilities for specialization on the part of eastern countries. Recent difficulties in the world market have increased western interest in the exploitation of eastern comparative advantage in the production of energy and other industrial materials. But co-operation is also expanding horizontally within manufacturing. Financial problems can be eased with the help of counterpart delivery arrangements. Of a recent sample of 300 co-operative agreements in manufacturing about 40 per cent reported counterpart delivery arrangements. Co-operation in the development of energy and other industrial materials involves credits from the west, which are repaid through future counterpart deliveries. Some countries in the east expect by 1980 to have raised the share of their total trade with western countries arising from this form of co-operation to 15 per cent. In Soviet-American bilateral trade this share is expected to reach some 38 per cent over the period 1976-1980.

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[6] The incidence of these agreements is distributed in the following way. In the east, Hungary, Poland and Romania occupy the leading position (30, 26 and 20 per cent respectively of the total number of contracts), and in the west, the Federal Republic of Germany, France and Austria (26, 16 and 12 per cent). Engineering and transport equipment—i.e. the sectors where economies of scale are important—account for the bulk of them (60 per cent), followed by chemicals (18 per cent) and metallurgy (7 per cent). Co-production is the most widespread form of co-operation (30 per cent of a sample studied). Next come arrangements relating to the transfer of technology, such as supplies of complete plants (29 per cent) and licensing (25 per cent) paid for on the basis of counterpart deliveries.

In terms of the *finance* involved, the bulk of co-operation is, and will be in the years to come, concentrated in the production of energy (primarily gas and coal) and other industrial materials, mainly petrochemicals, timber, cellulose, paper, ferrous metals, copper, aluminium and chemicals. Up to the present time about 50 projects of this kind have been negotiated. The bulk of them are located in the Soviet Union. The first stage of these co-operative projects, which is currently being implemented, involves the construction of particular enterprises in eastern Europe and the Soviet Union with the help of western credits which cover import costs of equipment and services. A number of industrial market economies have recently raised the level of their lending to eastern countries (often helped by governments) in order to sustain this co-operation. For the 1976-1980 period the total value of loans publicly announced amounts to some $12 billion, of which more than $10 billion is for the Soviet Union. The second stage is to come after 1978 when credit repayments will be made through counterpart deliveries from the newly-completed enterprises.[7] The number of agreements and the scale of finance involved are expected to increase in the years to come.

(v) Co-operation with developing countries

The trade between CMEA countries and the developing areas of the world has been increasing rapidly. However, CMEA countries tend to have a persistent surplus in this trade, for structural reasons. To prevent this surplus from rising too fast and becoming an obstacle to the growth of this trade, the CMEA countries have increasingly given assistance to exports from developing countries, and in an ever increasing number of ways. Assistance of this kind will remain the primary preoccupation of co-operative schemes negotiated, and to be negotiated, between eastern Europe and the developing countries.

The most common form of assistance has been through *credits* granted by eastern countries in the form of deliveries of machinery, equipment and technical services for the building of specific projects in developing countries, with the understanding that those credits will be repaid by counterpart deliveries. More and more frequently, enterprises in developing countries are constructed by the joint efforts of several eastern countries.[8] These arrangements have been increasingly supplemented by contracts whereby the partners in the two regions specialize in the production of specific products with a view to reducing costs and raising the level of mutual supplies.[9] It is expected that this latter type of arrangement will predominate in the future.

Governments have been very active in providing favourable conditions for the spread of interregional co-operation. Up to the present about 65 *inter-governmental agreements* have been concluded with the aim of stimulating contacts between CMEA-area enterprises giving preferences to imports from developing countries, and enterprises in these latter countries. These agreements are also aimed at improving payments arrangements by extending the use of the transferable rouble and convertible currencies in mutual transactions.[10]

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[7] The biggest deal in east-west co-operation concerns *gas*. At present, the Soviet Union imports large-diameter tubes ($4.3 billion over the period 1972-1975) and other equipment on credit from western countries. The credit will be repaid by future counterpart deliveries of gas—23 billion cu.m. per year by 1980. New deals are now being negotiated, with the prospect of Soviet exports reaching $1.5 billion by 1985.

Recently a bank consortium in the Federal Republic of Germany granted a credit of 300 million DM to finance the development of *copper* production in Poland. The credits will be repaid by Polish deliveries of electrolytic copper—40 thousand tons per year over 12 years, starting in 1977. A similar arrangement was made in an earlier deal involving the production of gas from Polish coal.

Soviet-Japanese projects for *gas*, *coal* and *timber* involve credits of $4.5 billion and Soviet counterpart deliveries as follows: 10 billion cu.m. of gas per year from 1980, 104 million tons of coking coal over a period of 20 years, and 18.4 million cu.m. of timber over a period of 5 years.

In recent years Italy has granted $1.9 billion of credits to the Soviet Union, mainly for the building of chemicals, paper, pulp and non-ferrous metallurgy plants, which will in future supply Italy with raw materials.

French companies are building an *aluminium* complex in the Soviet Union (1 million tons of alumina, 500 thousand tons of aluminium) for 6 billion francs (French credit 3 billion). Repayments will be made in metal.

The United Kingdom has extended a credit of £12 million to Hungary for the building of a *polypropylene* factory (40 thousand tons) against future deliveries of this product.

[8] Enterprises in the Soviet Union, Czechoslovakia and the German Democratic Republic are jointly participating in the construction of iron and steel plants in India, Algeria and Iran. Enterprises in the German Democratic Republic, Hungary, Czechoslovakia, the Soviet Union and Bulgaria are setting up cement factories in Syria. Enterprises in the Soviet Union and Romania are participating in the construction of oil refineries in several developing countries (the largest in India).

[9] CMEA and developing countries are participating together in setting up factories or infrastructural facilities in some cases. A number of joint schemes between the Soviet Union and India envisage a vast programme of exchange of component parts in textiles, machinery, electronics and motor vehicles. An agreement between Poland and Egypt envisages the exchange of component parts for motor cars.

[10] In October 1976 the council of the CMEA Bank for Economic Co-operation (IBEC) eased conditions for the participation of non-member countries in the system of multilateral settlements in transferable roubles. The obligation of preliminary balancing of mutual settlements has been removed. Amounts of credit granted by the IBEC on favourable conditions have been raised to 100 per cent of the amount of settlement agreed between interested countries. Recent examples of agreements include: Bulgaria with Ghana, Morocco, Syria and Tunisia; Czechoslovakia with Algeria, Sudan, Tunisia; Hungary with Algeria, Egypt, Mexico, Morocco, Sudan and Syria; Poland with Algeria, Egypt, Mali, Morocco, Sri Lanka, Sudan, Tunisia; and the Soviet Union with Tunisia.

New agreements and further improvements in trading and payments systems are expected in the years to come. The east European countries and the Soviet Union have announced so far some 12 billion roubles of credits to support trade and co-operation with developing countries. Moreover, the CMEA Investment Bank has recently established a fund of 1 billion transferable roubles for the finance of projects in developing countries. The announcement of further credits of this type is expected.

A point of particular importance is the intensification of co-operation between CMEA countries and *oil-exporting countries*. In some cases, CMEA countries borrow capital from oil-producing countries to build particular enterprises at home, repaying credits by future counterpart deliveries of products (Soviet paper for Iran, Polish paper and processed food for Iran, Romanian petro-chemicals for Kuwait). In other cases, eastern countries are building enterprises in oil-producing countries (to which they also deliver necessary equipment) against payments in cash or deliveries of oil.[11] The present value of these agreements exceeds several billion dollars, and all of them should be implemented during the current quinquennium. Certain eastern countries have signed special deals with Iran for the import of gas (3.6 billion cu.m. per year for Czechoslovakia and some 17 billion cu.m. for the Soviet Union, to be re-exported to the west).

A rapid extension of this form of co-operation has greatly helped both exports of machinery from CMEA countries and exports of manufactured products from the developing countries; the latter reached in 1973 some 34 per cent of the total. A few trade agreements, among the many recently signed, may illustrate future expectations. Over the current quinquennium, the annual trade between Romania and Iran may increase from $0.4 to $1 billion, between Czechoslovakia and Iran by 55 per cent, between the Soviet Union and India by 50 to 100 per cent and between the Soviet Union and Iran from $1.2 billion over the period 1971-1975 to $3 billion over the period 1976-1980. The commodity composition of Soviet-Iranian trade will be very varied: Iran will export gas, articles of clothing and other manufactured goods against Soviet exports of steel, machinery, chemical fertilizers, trucks and cement. In one single year—1976—Bulgarian-Indian trade doubled, and it is expected to continue increasing fast.

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[11] Examples are—in Iran: steel, alumina (500 tons capacity), electricity, grain silo and engineering projects built by the Soviet Union; cement, engineering and petrochemical works, mechanized bakeries and oil refineries built by Romania; electric power plants, two sugar mills, two cement factories and a grain mill built by Czechoslovakia; in Iraq: industrial and agricultural projects built by the Soviet Union; in Algeria: irrigation works assisted by Hungary.

SELECTED BIBLIOGRAPHY ON FIVE-YEAR PLANS

Albania

Draft directives of the VII Party Congress on the VI five-year plan for the development of the economy and culture for 1976-1980, Agence Télégraphique Albanaise, *Bulletin d'information*, 25 July 1976 (in French).

Directives on the VI five-year plan, approved by the VII Congress of the Albanian Workers' Party, *Summary of World Broadcasts*, Part 2, Eastern Europe No. EE 5362, 12 November 1976.

M. Shehu, Report on the directives of the VII Congress of the Party of Labour of Albania for the VI five-year plan (1976-1980) of economic and cultural development of the People's Republic of Albania, submitted to the VII Congress of the PLA on 4 November 1976, The "8 Nëntori" publishing house, Tirana, 1976.

Law on the VI five-year plan for the development of the economy and culture of the People's Republic of Albania for 1976-1980, approved by the Albanian People's Assembly, 28 December 1976, *Summary of World Broadcasts*, Part 2, No. EE 5401, 31 December 1976.

P. Dode, Reports on drafts of the VI five-year plan and plan and budget for 1977, *Summary of World Broadcasts*, Part 2, No. EE 5401, 31 December 1976.

Vjetari Statistikor i RPSH 1971-1972, Tirana 1973 (Statistical Yearbook of PRA).

Bulgaria

Guidelines of the XI Congress of the Bulgarian Communist Party on the socio-economic development of the People's Republic of Bulgaria during the VII five-year plan (1976-1980), *Rabotnichesko Delo*, 2 April 1976.

T. Zhivkov, Report of the Central Committee of the BCP for the period between the X and XI congresses and on forthcoming tasks, *Rabotnichesko Delo*, 30 March 1976.

Law on the integrated plan for the socio-economic development of the PRB during the period of the VII five-year plan (1976-1980), *Rabotnichesko Delo*, 30 October 1976.

S. Todorov, The socio-economic development of the PRB during the five-year plan period 1976-1980 (Report), *Rabotnichesko Delo*, 28 October 1976.

Statisticheski godishnik na Narodna Republika Bulgaria (Statistical Yearbook).

V''nshna T''rgovia (Foreign Trade Statistical Yearbook).

Ikonomicheski Zhivot (Economic Life, weekly newspaper).

Czechoslovakia

Directive on the economic and social development of the Czechoslovak Socialist Republic for 1976-1980 (VI five-year plan). Approved by the XV congress of the CPCz, *Rudé Právo*, 21 April 1976.

L. Strougal, Report on the main trends in economic and social development of the ČSSR in 1976-1980, *Rudé Právo*, 14 April 1976.

Law No. 69/1969, dated 22 June 1976, on the state plan for the development of the national economy of the ČSSR in the period 1976-1980, *Hospodářské Noviny*, No. 27, 2 July 1976.

V. Hula, A realistic programme for economic and social development (Report), *Rudé Právo*, 23 June 1976.

Statistická Ročenka ČSSR (Statistical Yearbook of the Czechoslovak Socialist Republic).

Zahraniční Obchod (Foreign Trade, monthly bulletin).

Hospodářské Noviny (weekly economic bulletin of the CPCz).

German Democratic Republic

Directives on the VI five-year plan for the national economic development of the GDR 1976-1980, issued by the IX Congress of the Socialist Unity Party of Germany, Berlin, 1976.

H. Sindermann, Report on the directives for the five-year plan 1976-1980, Berlin, 1976.

Law on the five-year plan for the development of the national economy of the GDR, 1976-1980. *Gesetzblatt der Deutschen Demokratischen Republik*, Teil I, No. 46, Berlin, 17 December 1976.

W. Stoph, Report on the law on the five-year plan 1976-1980, *Neues Deutschland*, 16 December 1976.

Statistisches Jahrbuch der Deutschen Demokratischen Republik (Statistical Yearbook).

Die Wirtschaft (weekly newspaper).

DDR Aussenwirtschaft (GDR Foreign Trade, weekly newspaper).

Hungary

Resolution of the XI Congress of the HSWP on the V five-year plan, *Népszabadság*, 23 March 1975.

J. Kádár, Report of the Central Committee of the HSWP, *Népszabadság*, 18 March 1975.

Law on the V five-year plan for the Hungarian economy 1976-1980, *Népszabadság*, 21 December 1975.

I. Huszár, Report in the Hungarian National Assembly on the five-year plan, *Népszabadság*, 18 December 1975.

Statisztikai Évkönyv (Statistical Yearbook).

Külkereskedelmi Statisztikai Évkönyv (Foreign Trade Statistical Yearbook).

Figyelő (Observer, weekly newspaper).

Poland

Directive of the VII Congress of the PUWP on the five-year plan (Draft), *Życie Warszawy;* 6-7 September 1975.

P. Jaroszewicz, Foundations of socio-economic development during the years 1976-1980 (Report to the VII Congress of the PUWP), *Trybuna Ludu*, 10 December 1975.

P. Jaroszewicz, Report on the aims set out in the programme of the VII Party Congress concerning the VII five-year plan, *Trybuna Ludu*, 20 December 1976.

Rocznik Statystyczny (Statistical Yearbook).

Rocznik Statystyczny Handlu Zagranicznego (Foreign Trade Statistical Yearbook).

Życie Gospodarcze (weekly newspaper).

Romania

Directives of the XI Congress of the Romanian Communist Party concerning the 1976-1980 five-year plan and guidelines for the economic and social development of Romania in the period 1981-1990, Bucharest, 1974.

Programme of the RCP for the building of a multilaterally developed socialist society and Romania's advance towards communism, Bucharest, 1974.

N. Ceauşescu, Report to the XI congress of the RCP, Bucharest, 1974.

Law on the adoption of the unified national plan for the economic and social development of the SRR in the period 1976-1980, *Scînteia*, 3 July 1976.

Communiqué regarding the fulfilment of the unified national plan for the period of 1971-1975 issued by the Supreme Council for Economic and Social Development, the State Planning Committee, and the Central Statistical Office, Bucharest, 1976.

Anuarul Statistical Republicii Socialiste România (Statistical Yearbook).

Revista Economică (weekly newspaper).

Soviet Union

Guidelines on the development of the national economy of the USSR for 1976-1980, Moscow, 1976.

L. Brezhnev, Report of the CPSU Central Committee and the immediate tasks of the party in home and foreign policy, Moscow, 1976.

A. Kosygin, Guidelines on the development of the national economy of the USSR 1976-1980. Report to the XXV Congress of the CPSU, Moscow, 1976.

Law on the state five-year plan on the development of the national economy of the USSR for 1976-1980 and for 1977, *Pravda*, 30 October 1976.

N. Baibakov, Report on the X five-year plan and the plan for 1977 on the development of the national economy of the USSR, *Pravda*, 28 October 1976.

Narodnoe Khozyaistvo SSSR (Statistical Yearbook).

Vneshnaya Torgovlya SSSR (Foreign Trade Statistical Yearbook).

Economicheskaya Gazeta (weekly newspaper).

Byelorussian SSR

P. Macherov, T. Kiselev, F. Surganov, Report to the XXVIII Congress of the Communist Party of the Byelorussian SSR, *Press Release* (special issue), 4 February 1976.

Law on the state five-year plan for the development of the national economy of the Byelorussian SSR for 1976-1980 and for 1977, *Soviet Belorussia*, 19 November 1976.

P. Macherov, "On the tasks of communist organizations" (Report on the X five-year plan to the plenary session of the CC of the CP of the Byelorussian SSR), *Soviet Belorussia*, 18 November 1976.

Narodnoe Khozyaistvo Belorusskoi SSR (Statistical Yearbook).

Ukrainian SSR

V. Shcherbitsky, Report of the Central Committee of the Communist Party of the Ukraine to the XXV Congress of the Communist Party of the Ukraine, Kiev 1976.

Law on the state five-year plan for the development of the national economy of the Ukrainian SSR for 1976-1980 and for 1977, *Pravda Ukrainy*, 20 November 1976.

Materials from the plenary session concerning the X five-year plan for the Ukrainian SSR, *Pravda Ukrainy*, 18 November 1976.

Narodnoe Khozyaistvo Ukrainskoi SSR (Statistical Yearbook).

APPENDIX TABLE

Output of selected industrial products in the Soviet Union

	1965	1970	Plan 1975	1975	1976	Plan 1980	Annual percentage change				
							1966-1970	Plan 1971-1975	1971-1975	Plan 1976-1980	1976
Electricity (billions of kWh)	507	741	1 065	1 039	1 111	1 380	7.9	7.5	7.0	5.9	7.0
Coal[a] (millions of tons)	577.7	624.1	695	701.3	712	805	1.6	2.2	2.3	2.8	1.6
Crude oil (millions of tons)	242.9	353	505	490.8	520	640	7.7	7.4	6.8	5.4	6.0
Natural gas (billions of cu. m.)	127.7	197.9	320	289.3	321	435	9.2	10.1	7.9	8.5	11.0
Pig iron (millions of tons)	66.2	85.9	109	103	105	..	5.4	4.9	3.7	..	2.0
Steel (millions of tons)	91	115.9	146	141.3	145	168.5	4.9	4.7	4.1	3.5	2.7
Finished steel products (millions of tons)	61.7	80.6	103	98.7	101	117.5	5.5	5.1	4.2	3.5	2.4
Steel pipes (millions of tons)	9	12.4	17.5	16	16.8	19.8	6.6	7.1	5.2	4.4	5.0
Mineral fertilizers[b] (millions of tons)	31.3	55.4	90	90.2	92.3	143	12.1	10.2	9.9	9.7	2.4
Plastics and resins (thousands of tons)	803	1 673	3 533	2 842	3 100	5 739	15.8	16.1	11.2	15.1	9.1
Synthetic and artificial fibres (thousands of tons)	407	623	1 065	955	1 020	1 460	8.9	11.3	8.9	8.8	6.8
Sulphuric acid (millions of tons)	8.5	12.1	..	18.6	20	..	7.3	..	9.0	..	7.6
Caustic soda[c] (millions of tons)	12	17.6	27.1	24	26	..	8.0	9.0	6.3	..	8.6
Soda ash[c] (millions of tons)	2.73	3.49	4.93	4.69	4.80	..	5.0	7.2	6.1	..	2.3
Tyres (millions)	26.4	34.6	51.2	51.5	54.5	..	5.6	8.2	8.3	..	5.9
Steam, gas and hydraulic turbines (thousands of MW)	14.6	16.2	24.2	18.9	19.6	..	2.1	8.3	3.1	..	3.7
Generators for turbines (thousands of MW)	14.4	10.6	20.2	17.1	16.6	..	–5.8	13.8	10.0	..	–2.9
Motor cars (thousands)	616.3	916.1	2 100	1 964	2 025	2 297	8.3	18.0	16.5	3.2	3.1
of which:											
Passenger cars (thousands)	201.2	344.2	1 260	1 201	1 239	..	11.3	29.6	28.4	..	3.2
Trucks (thousands)	379.6	524.5	765	696	716	..	6.7	7.8	5.8	..	2.9
Buses (thousands)	35.5	47.4	75	67	70	..	6.0	9.6	7.1	..	4.4
Tractors (thousands)	355	459	575	550	562	580-600	5.2	4.6	3.7	1.1-1.7	2.2
Metal-cutting machine tools (thousands)	186	202	240	231	231	..	1.7	3.5	2.7	..	—
Electric and diesel locomotives (millions of h.p.)	7.19	6.22	..	6.84	7.20	..	–2.8	..	1.9	..	5.3
Commercial timber (millions of cu. m.)	274	299	310	313	300	..	1.8	0.7	0.9	..	4.1
Pulp (thousands of tons)	3 234	5 110	8 490	6 840	7 200	9 130	9.6	10.7	6.0	6.0	5.3
Paper (thousands of tons)	3 231	4 185	5 560	5 215	5 400	..	5.3	5.8	4.5	..	3.6
Cardboard (thousands of tons)	1 449	2 516	4 460	3 368	3 500	..	11.7	12.1	6.0	..	4.0
Cement (millions of tons)	72.4	95.2	125	122.1	124	144-147	5.7	5.6	5.1	3.7	1.6
Fabrics (billions of sq. m.)	7.50	8.85	11.10	9.96	10.28	12.75	3.4	4.6	2.4	5.1	3.2
of which:											
Cotton (billions of sq. m.)	5.50	6.15	7.30	6.63	6.78	..	2.3	3.5	1.5	..	2.2
Linen (billions of sq. m.)	0.55	0.71	0.89	0.78	0.81	..	5.2	4.7	1.9	..	3.6
Wool (billions of sq. m.)	0.47	0.64	0.89	0.74	0.76	..	6.6	6.8	2.8	..	3.3
Rayon and silk (billions of sq. m.)	0.80	1.15	1.71	1.51	1.60	..	7.4	8.3	5.7	..	6.0

APPENDIX TABLE (*continued*)

	1965	1970	Plan 1975	1975	1976	Plan 1980	Annual percentage change 1966-1970	Plan 1971-1975	1971-1975	Plan 1976-1980	1976
Clothing (billions of roubles)[d]	9	16	21.8	19	19.8	. .	12.2	6.4	3.5	. .	4.3
Knitted wear (millions of units)	903	1 229	1 848	1 420	1 458	1 800-1 900	6.3	8.5	3.0	4.9-6.0	2.7
Shoes, leather (millions of pairs)	486	679	830	698	725	. .	6.9	4.1	0.5	. .	3.9
Radio sets (thousands)	5 160	7 815	11 100	8 376	8 443	. .	8.7	7.3	1.4	. .	0.8
Television sets (thousands)	3 655	6 682	6 600	6 960	7 100	. .	12.8	–0.2	0.8	. .	2.1
Domestic refrigerators (thousands)	1 675	4 140	6 901	5 577	5 800	. .	19.8	10.8	6.2	. .	4.0
Domestic washing machines (thousands)	3 430	5 243	. .	3 286	3 500	. .	8.9	. .	–8.8	. .	6.6
Motor cycles and scooters (thousands)	711	833	1 200	1 029	1 059	. .	3.2	7.6	4.4	. .	3.0
Furniture (billions of roubles)[d]	1.80	2.79	4.63	4.26	4.44	. .	9.1	10.7	8.8	. .	4.3
Meat[e] (thousands of tons)	5 245	7 144	. .	9 862	8 300	. .	6.4	. .	6.7	. .	–15.8
Butter (thousands of tons)	1 072	963	. .	1 231	1 300	. .	–2.1	. .	5.0	. .	5.6
Milk and milk products[f] (millions of tons)	11.7	19.7	. .	23.6	23.4	. .	10.9	. .	3.7	. .	–0.8
Sugar (millions of tons)	11.04	10.22	13.67	10.38	9.20	. .	–1.5	6.0	0.3	. .	–11.3
Vegetable oils (thousands of tons)	2 770	2 784	. .	3 344	2 800	. .	1.0	. .	3.7	. .	–16.2

Sources: Narodnoe Khozyalstvo SSSR v 1975 godu (Statistical Yearbook for 1975), plan and plan-fulfilment reports.

[a] Hard coal, brown coal and lignite.

[b] In standard equivalent.

[c] 100 per cent content.

[d] At 1967 prices.

[e] Industrially processed only.

[f] In milk equivalent.

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